

**BACCALAUREATE NURSING STUDENTS' PERCEPTIONS OF LEARNING
PRACTICAL NURSING SKILLS USING THE FLIPPED CLASSROOM
METHOD AT A UNIVERSITY IN CENTRAL UGANDA**

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**UGANDA CHRISTIAN
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Declaration

This is to declare that the work presented in this proposal is my personal work and that it has not been submitted to any other institution of higher learning or university for any academic award.

Where other people's work has been referred to, this has been acknowledged.

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Dedication

This work is dedicated, first and foremost, to the loving memory of my late father, Fredrick Samanya Muganza, whose sacrifice and commitment to education laid the foundation for my academic journey. Though you are no longer with us, your voice continues to inspire me to strive for excellence. To my dear lovely mother, Lydia Muganza Andidi, for your love, constant prayers, guidance, and steadfast support. To my beloved husband, Rev. Dr. Alex Kamoga, for your unwavering support, encouragement, and constant presence. Your strength and faith have been my anchor. To my children; Emmanuella, Ebenezer and Favour, your love and believe in me have been my greatest motivation to persevere and succeed. To my parents in-law, Dr. Mukooza Edward, siblings and in-laws, thank you for encouraging me. This work is also dedicated to nurse educators and nursing students, whose commitment to learning, teaching, and improving patient care continues to inspire the advancement of nursing education. Above all, I dedicate this work to God, whose grace and strength sustained me throughout this course.

Acknowledgment

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Abstract

Safe and effective patient care is impossible without practical nursing skills and the method by which students are taught is very key to their learning. The flipped classroom approach has emerged as a learner-centered strategy that may potentially improve learning outcomes, but knowledge on its application in Ugandan remains limited. This study purposed to describe baccalaureate nursing students' perceptions of learning practical nursing skills using the flipped classroom method and to determine how students' readiness (motivation, self-directed learning, and technological preparedness) influences these perceptions. A descriptive cross-sectional quantitative design was employed among 116 first-year Bachelor of Nursing Science students at university in central Uganda and yielded 100% response. Data were collected using structured questionnaires and analyzed using descriptive and inferential statistics. Findings revealed positive perceptions of both theoretical knowledge and practical competence following the flipped classroom experience. Self-directed learning was the strongest predictor of both theoretical knowledge ($\beta = .65, p < .001$) and practical competence perception ($\beta = .64, p < .001$). Technological preparedness significantly predicts theoretical knowledge perception but has a weaker contribution to practical competence perception. Motivation shows a weak negative contribution to both outcomes. Students with higher readiness reported significantly better learning perceptions. The study concludes that the flipped classroom enhances perceived learning of practical nursing skills, with self-directed learning playing a critical role in shaping positive learning experiences. The findings support the integration of flipped classroom approach in nursing education and highlight the need to strengthen students' readiness to maximize learning outcomes. Further research across multiple institutions is recommended to enhance generalizability.

Chapter One: Introduction

Globally, practical nursing skills are fundamental to professional nursing competence (Fukada, 2018). The methods used to teach these skills are very key at determining how well students understand and perform nursing procedures (Pivac et al., 2021; Zaitoun et al., 2023). Traditionally, nursing education in Uganda and many other settings have relied on teacher-centered approaches, where instructors demonstrate procedures as students observe passively. Consequently, there is reduced critical thinking, and inadequate skill mastery (Nampiima et al., 2024; Drasiku et al., 2021). Innovative learner-centered strategies, such as the flipped classroom, are therefore being explored to enhance students' engagement, understanding, critical thinking abilities, and competence to perform practical nursing skills (Pivac et al., 2021; Zaitoun et al., 2023). In the flipped classroom approach, students interact with instructional content before class, and class time is used for interactive, hands-on, skill-building activities.” (El-Banna et al., 2017; Pivac et al., 2021). It fosters the learners' participation, critical thinking, motivation, and deeper understanding of concepts. However, its effectiveness is influenced by students' readiness for self-directed and technology-supported learning, as it requires learners to access online materials, prepare independently, and get fully engaged in in-class activities (Khanova et al., 2015). Despite its demonstrated success elsewhere, the experience of the flipped classroom approach in nursing education in Uganda is still underexplored. This study therefore, aims to describe the perceptions of baccalaureate nursing students' their ability to learn practical nursing skills using the flipped classroom method while considering how their readiness for flipped learning influences their perceptions.

Background

Acquisition of competence in execution of hands-on nursing skills is indispensable in nursing education, as any inexactitude can jeopardize patient care and safety (Wang et al., 2022).

Therefore, teaching and demonstration of practical skills is key and must be done efficiently for the students to sufficiently learn to provide safe patient care (Burton, 2022). Teaching tools and strategies need to be effective to ensure students ability to learn the expected learning outcomes that are needed for top nursing care in our constantly advancing health sector (Wang et al., 2022).

Originally, students learnt to perform practical nursing skills through the traditional teacher-centered teaching method in which the teacher demonstrated the skill as the students watched and later the students gave a return demonstration to replicate the skill (Burton, 2022). This was predominantly done in the nursing skills laboratory which acted as a virtual hospital that was stocked with manikins and training equipment to provide a controlled and safe learning environment in where students could practice, learn and gain confidence in performing practical nursing skills (Sugathapala & Chandrika, 2021). In order to encounter actual learning of the skill, students needed to often practice procedures in the skills laboratory so that they could gain the confidence, and enhance critical thinking skills and problem-solving abilities needed in the clinical area (Nampiima et al., 2024). While these traditional methods have long supported nursing education, they face several challenges such as large class sizes, limited opportunities for hands-on practice and feedback, and reduced student engagement and attention, thus do not prepare critical thinkers for real-world clinical demands in the 21st century (Burton, 2022; Drasiku et al., 2021; Epistemo, 2021; Gamuhay et al., 2019; Oermann et al., 2016). Nurse educators in Uganda are guided to use role play, simulation, case studies, and guided discussion to supplement the traditional teaching methods, but not many of them have taken it up (Ministry of Education and Sports, 2018). However, though not documented, a few of the nurse educators in Uganda today integrate technology such as video demonstrations and YouTube videos in their teaching to complement the usual traditional approaches. Sadly, Nampiima et al. (2024) report that in Uganda, traditional face-to-face demonstrations remain the primary mode of teaching

practical nursing skills. Teachers demonstrate skills to crowded classes where it's hard for the student in the back to see exactly what is being demonstrated, limited equipment restricts hands-on practice opportunities for students, many students are not attentive because of the passive role they play, and not every student gets the opportunity to return the demonstration to the teacher because of the limited time available (Drasiku et al., 2021; Isingoma, 2014; Nampiima et al., 2024). Consequently, many newly graduated nurses are not able to competently perform practical nursing skills while in the clinical area, which compromises the safety of patients (Bayram & Caliskan, 2021; Drasiku et al., 2021; Nampiima et al., 2024; Relloso et al., 2021). In response, global trends in nursing education have emphasized student-centered and innovative teaching approaches such as the flipped classroom, where the teacher only creatively facilitates learning as the students are directly responsible and fully active participants in their own learning (Epistemo, 2021).

In particular, the flipped classroom method is a paradigm shift of passive learning to active learning. It relocates the foundational learning outside the classroom and devotes classroom time to active, practical skill building, which contributes to increasing student engagement, motivation, and skills acquisition (El-Banna et al., 2017; Pivac et al., 2021). Instead of passively watching the instructor, students are left to engage with the material on their own and think critically, apply knowledge, and attempt skills before the actual period of the class. They also become actively involved with the content reading it, watching or listening to it at their own pace as opposed to sitting through a two-hour face-to-face demonstration and notes or even simply speculating. Consequently, the learner is able to read, reread, rewind, pause or replay portions of it to get a clearer understanding of the same or to write down questions to the teacher. Notably, it allows learners to get acquainted with the content in advance in which encourages them to actively engage in classroom activities (Nurse Education and the Flipped Classroom,

2019). This method supports various styles of learning and requires self-directed learning, critical thinking, technology use, and active engagement beyond the classroom (Pivac et al., 2021; Sullivan, 2022). However, the success of this method largely depends on students' readiness for flipped learning, which includes their ability to manage time effectively, engage with pre-class materials, and utilize digital tools confidently however, the success of this approach may be affected by the readiness of students to participate in flipped learning. Hao (2016); Sebuliba (2022), found that students' technological competence, motivation, and self-directed learning significantly influenced their participation and perception of online learning activities. Inadequate readiness may therefore affect students' learning experience and perceived competence in skill acquisition. The foundation of the flipped classroom method is the idea that learners and instructors share responsibility for learning, encouraging engagement, mutual accountability, and reflection of the learned material, all of which improve students' comprehension of the skill being taught, ability to retain theoretical knowledge and practical skills, satisfaction with the process of learning, and perception of competence gained (El-Banna et al., 2017). It integrates technology into teaching, shifting the student's role from passive to active participants, self-directed and creative engagement towards their own learning needs (Ke et al., 2023; Park & Suh, 2021). Consequently, students are able to develop competency in performing the different nursing skills and thus promote patients' safety. The flipped classroom method is a popular teaching method that encourages critical thinking and practical application of knowledge acquired before the class to real-world challenges (Hoover et al., 2018). Through active engagement of students in class discussions, small group activities, and case scenarios, the teacher uses class time to actively encourage student participation in exercises that require high-level application of knowledge, thus promoting critical thinking abilities, reasoning, and problem-solving abilities which are pertinent in clinical practice (El-Banna et al., 2017; Ke et al.,

2023). Flipping the classroom gives students the opportunity to experience actual reading and learning in various ways on their own before the class and actively participate in interactive learning activities.

While the flipped classroom approach has demonstrated success in improving learning outcomes in various contexts, its use and effectiveness in nursing education in Uganda remains underexplored. Also, students' readiness to engage with such a learner-centered and technology-driven approach is not well understood, yet it may influence student's perceptions of learning as well as practical competence development. Given the challenges of limited resources, large class sizes, and restricted opportunities for practical learning in Uganda, the flipped classroom approach offers a promising solution as it integrates technology into teaching, enables flexible learning, and ensures that students come to class prepared to actively participate. It is therefore, important to understand how students perceive their ability to learn practical skills when taught using this approach. This study seeks to describe students' perceptions of their ability to learn practical nursing skills through the flipped classroom method while considering how their readiness to engage in such a student-centered approach influences their perceptions.

Statement of the Problem

Nursing education in Uganda continues to rely predominantly on traditional teacher-centered approaches despite the emergency of innovative student-centered teaching methods, such as the flipped classroom, which has been proved to promote student engagement, critical thinking, and clinical competence in nursing education (Betihavas et al., 2016; El-Banna et al., 2017; Ke et al., 2023; Zaitoun et al., 2023). Today, students in Uganda arrive in the skills laboratory without any prior preparation, their role is to passively observe as the teacher demonstrates procedures to crowded classes where those seated at the back can hardly see what is being performed, and due to limited resources and time, not every student gets the opportunity

to return the demonstration or receive individualized feedback from the instructor. This limits active participation, self-directed learning, and cultivation of confidence and critical thinking abilities needed for clinical competence. Recent research in Uganda has focused mainly on blended learning and digital readiness, with little evidence on the implementation of flipped classroom learning in nursing education (Baingana, 2024; Nampiima et al., 2024). This study therefore, focused on describing BNS' perceptions of learning practical nursing skills using the flipped classroom method

Purpose of the Study

This study seeks to describe baccalaureate nursing students' perceptions of their ability to learn practical nursing skills when taught using the flipped classroom method.

Research Question

What are the perceptions of baccalaureate nursing students in Uganda concerning their ability to learn practical nursing skills after being taught using the flipped classroom method?

Objectives

To describe the perceptions of baccalaureate nursing students' learning regarding the theoretical knowledge underlying practical nursing skills after exposure to the flipped classroom method

To describe the perceptions of baccalaureate nursing students' learning regarding the competence gained to perform practical nursing skills after exposure to the flipped classroom method.

To determine how students' readiness for flipped classroom learning specifically motivation, self-directed learning, and technological preparedness influences their perceptions of learning practical nursing skills.

Significance of the study

The results from this study may provide valued insights that may guide nurse educators in the selection and implementation teaching strategies that enhance active student participation, development of critical thinking abilities, and mastery of practical nursing skills. The findings may also may inform curriculum development and instructional design in nursing programs, ultimately contributing to the preparation of well-equipped graduate nurses who demonstrate clinical competence and professional confidence. Furthermore, the study may provide local insights into innovative evidence-based teaching strategies that influence educational policy and teacher development initiatives aimed at improving teaching effectiveness in nursing education programs across Uganda and similar low-resource contexts.

Theoretical Framework

Kolb's experiential learning theory is a middle range theory (Dsouza, 2016) that was published in 1984 by David A. Kolb; an American psychologist, lecturer, and education theorist (Kolb, 1984). It was derived from past learning theories as well as observations of adult learner populations, graduate, and undergraduate learner groups. Kolb synthesized the ideas of Piaget, who defined intelligence as the outcome of an individual's interaction with their environment, Lewin, who emphasized the significance of student active participation, and Dewey, who highlighted the relevance of experience in learning (Kolb, 1984). Learning may start at any stage of the cycle but effective learning occurs when they progress through all the stages (Kolb, 1984). David Kolb (1984) asserted that an individual's approach to learning is impacted by their upbringing, heredity, and current circumstances. A learner progresses to the spiral of direct experience, which leads to observations and introspection regarding the occurrence. These reflections become theories or abstract notions after being assimilated and integrated with previous knowledge. This results in new ways of understanding the experience that may be

explored and validated (Murray, 2018). According to Dsouza (2016), Kolb sees learning as an integrated process, and Murray (2018), notes that involvement is the basis of effective learning. Kolb (1984) defined learning as a manner by which knowledge is made by converting pertinent experience and comes about as a result of absorbing and converting that experience. “grasp experience” is the process of taking in information during the "concrete experience" and "abstract conceptualization" phases, whereas “transform exposure” is the process by which people understand and react upon that information during the "reflective observation" and "active experimentation" phases. Employers, students and educators find this theory very influential (Akella, 2015). For instance, this theory helped Kolb’s students at Stanford University by showing him to learn better on their own (Main, 2022). Its use in simulation training for nursing is both important and practical. (Murray, 2018). It’s typically represented by a cycle of four stages which include “Concrete Experience”, “Reflective Observation”, “Abstract Conceptualization”, and “Active Experimentation” (figure 1). Kolb’s Experiential Learning Theory is important to this study as it clearly describes how nursing students form perceptions of their learning experiences as they move through each stage of the learning cycle. The flipped classroom aligns naturally with this model, as it allows students to engage with content before class (AC), reflect on it (RO), and then actively apply it in the skills lab (CE and AE). Through this cycle, students’ perceptions of their learning, and competence gained to perform practical nursing skills are shaped.

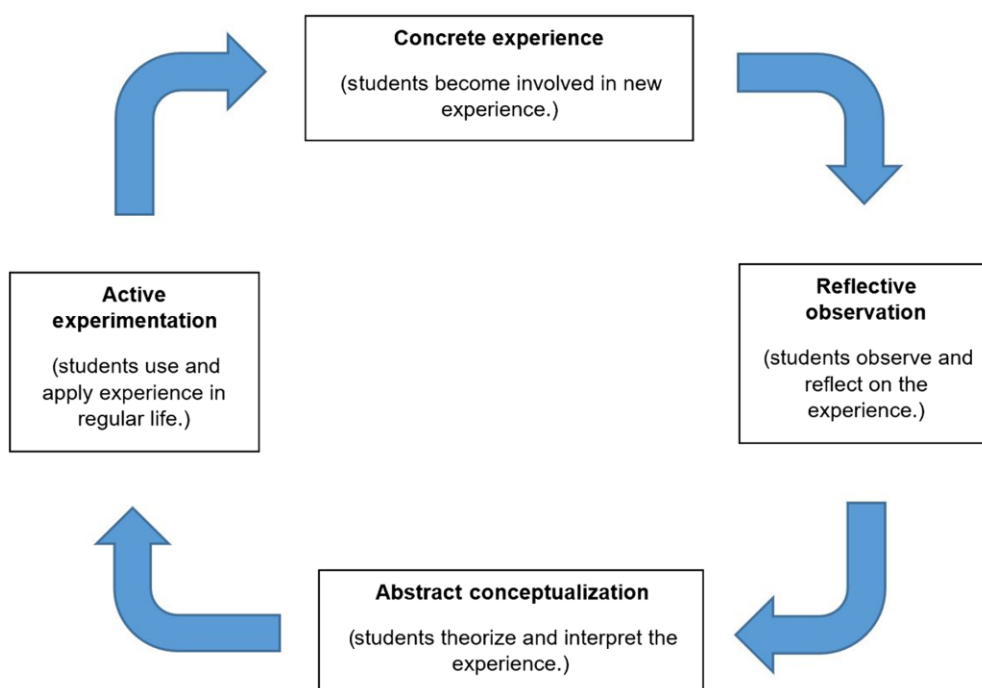


Figure 1: David Kolb's Theory of Experiential Learning (Croft et al., 2021; pg 128) Used with permission

Concrete Experience (CE) includes all forms of actual experiences in life. It designates the first part of Kolb's learning cycle, whether it's a brand new experience or an earlier one that was thought about again (Croft, et al, 2021; Kurt, 2020; McLeod, 2018). The learner gets actively engaged in an ongoing activity or a real-life situation as a way to acquire knowledge or skills. They show personal involvement with others in everyday situations and experience the activity by doing it practically (Main, 2022). The educator facilitates the students' learning. Immediate lessons happen and people pay attention to them and reflect on them (Kolb's Experiential Learning Cycle, n.d). Kolb notes that learning requires taking part in activities. A significant concrete learning experience motivates students to do more than just watch; that's why CE helps ensure learners are successful (Croft et al., 2021; Kurt, 2020; McLeod, 2017). It includes opportunities for learning that help the learner use their background knowledge to make sense of what they experience and come up with new ideas.

Reflective Observation (RO), immediately follows CE, learners carefully consider and review their new experience, organize the information and start forming a meaningful idea out of it (Croft et al., 2021; Kurt, 2020; McLeod, 2017). The learner consciously reflects back on the experience. They depend on objectivity, endurance, and careful judgment without any action (Main, 2022). It involves asking questions, thinking, and discussing experience with others (Croft et al., 2021; Kurt, 2020; McLeod, 2017). Good communication, helping students reflect and encouraging questions allows everyone to feel appreciated while discussing their experience. It is the job of the educator to guide the reflection using resources, instruction and a special framework that supports thorough analysis. (Kolb's Experiential Learning Cycle, n.d.).

Abstract Conceptualization (AC) is the next step, where learners create new ideas as a result of their reflection, so their education can guide future learning activities (Croft et al., 2021; Kurt, 2020; Main, 2022, McLeod, 2017). Learning from a reflections session enables students to recognize the link between theory and what they learn in the classroom (Croft et al.; Kurt 2020; McLeod). This will allow them to revise their thoughts about general concepts and interpret the experience better (Main, 2022). From those conclusions, new implications for action can be drawn. Moving what is learned into flexible theories enables learners to use it in numerous experiences of life (Croft, et al., 2021; Kurt, 2020; McLeod, 2017). It is the teacher's role to determine what needs to be done and to evaluate the learner's skill application to ensure success (Kolb's Experiential Learning Cycle, n.d.).

Active Experimentation (AE) is the fourth stage where the student puts theoretical knowledge into practice, adapts newly learned concepts, and tests conclusions by trying out new strategies uses newly learned knowledge and tries out the conclusions by testing strategies (Croft et al., 2021; Kurt, 2020; McLeod, 2017). They don't just watch a situation; they directly engage with tasks in a hands-on manner which enables them to examine what they have learnt and apply the concept

or skill to real-world scenarios to see whether it works and whether any adjustments need to be made (Main, 2022). By allowing students to test theories and apply them to future problem-solving in the clinical setting, AE helps students retain information. The encounters in AC might then start a fresh cycle starting with concrete involvements (Croft, et al., 2021; Kurt, 2020; McLeod, 2017).

Kolb (1984) noted that experiences are integral for change to occur. Therefore, students ought to participate completely, with openness, and impartiality during new experiences, a process referred to as Concrete Experience (CE). They should also consider and observe their experiences from multiple viewpoints, known as Reflective Observation (RO). Furthermore, learners must develop concepts that connect their observations to relevant theories which is known as Abstract Conceptualization (AC). Finally, they should put these theories into practice when solving problems and making decisions which is known as Active Experimentation (AE).

Operationalization of David Kolb's Experiential Learning Theoretical Framework

This study will use the theoretical framework as a whole. This includes the CE, RO, AC, and AE stage.

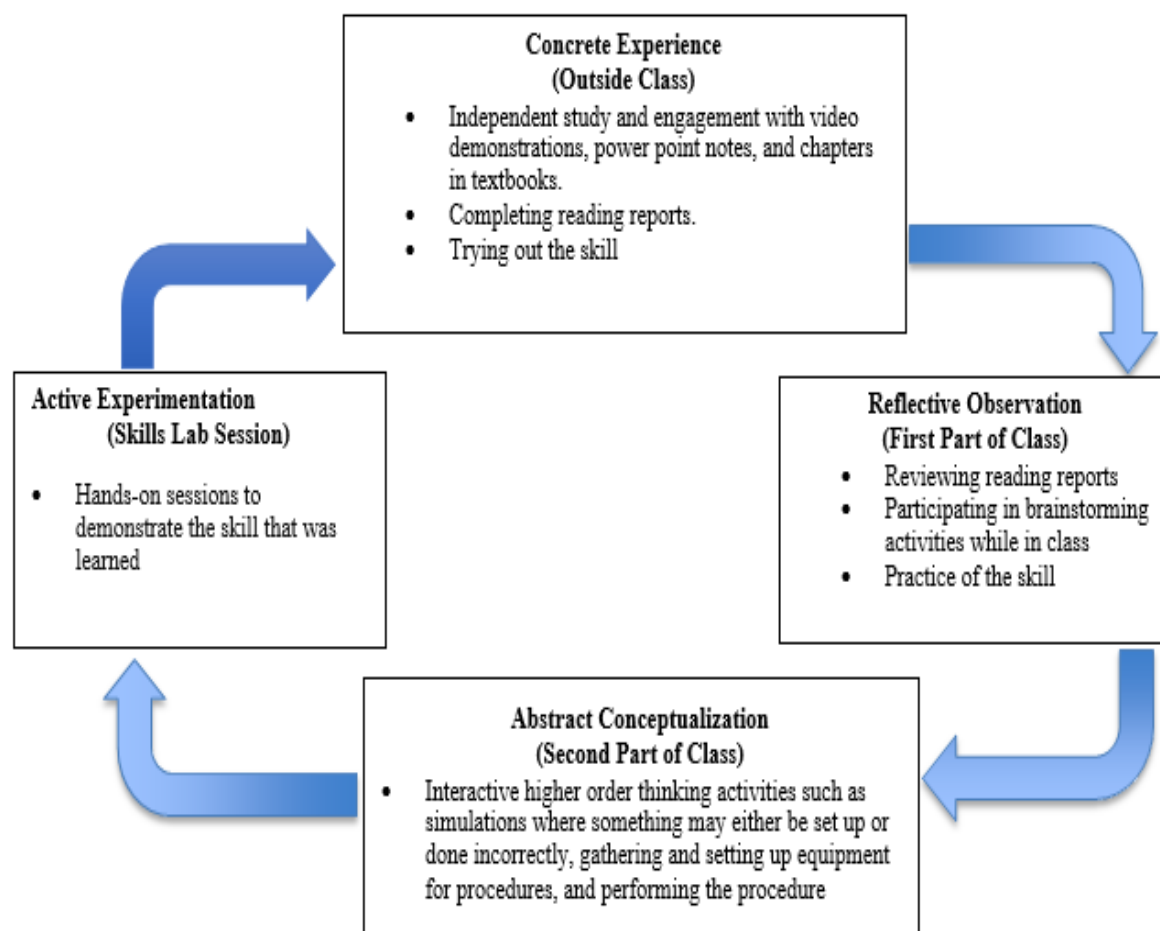


Figure 2: Operationalized David Kolb's Experiential Learning Theoretical Framework
(Adapted with Permission)

The Concrete Experience Stage will be the first phase. Students will interact with the study material on their own, they will attempt to perform the skill and establish a basic comprehension of the subject. Students will seek out and engage with pre-class resources such as watching recorded video demonstrations, reading power point presentations, textbook chapters and completing reading assignments. They will then take the opportunity to practice applying the skill firsthand. Watching video demonstrations will help them grasp the skill as they will be able to clearly see the demonstrations, pause and rewind as they learn. Reading assignments from textbooks, and power point notes will provide additional depth and context to their learning.

Reading reports will help them to assess their learning, and hands-on-practice will not only serve to gauge comprehension but also foster a sense of accountability and self-directed learning. This step will enlighten the perceptions of the students by providing them with a firsthand experience of the learning content and skills practice in the flipped classroom. The very fact that they will be exposed to video demonstrations and at first, attempt to learn the skill will influence the way that they will see themselves to be able to understand and perform the skill.

The Reflective Observation Stage will be the first phase. The students will recap what they have already learned during the first phase when reviewing reading reports, brainstorming in the classroom, and practicing the skills that they tried during the concrete stage in the skills lab. Going through the reading reports, and practicing the skill will enable them to critically assess their performance in the pre-class activities because they will be able to pinpoint their outstanding performance areas, challenges and areas that need improvement. The teacher will use brainstorming sessions to implement creativity and the exploration of various perspectives, which will help attain a better grasp of the topic at hand. This reflection will enhance the perception and comprehension of the students on the competence and clarity that has been acquired in the process of performing skills. The reflections of students also enable them to identify the loopholes in the learning process and modify the view of themselves as learners.

The Abstract Conceptualization Stage will be the third phase. Students will be involved in interactive higher order thinking activities. These will consist of simulations where students possibly need to assemble and prepare gear to carry out processes, or deliberate mistakes are made in the preparation and execution of the skill and the learners will need to diagnose and rectify those errors with justification. These activities will facilitate students' critical thinking and their problem solving abilities as they will need to synthesize the knowledge and use their conceptual understanding to practical situations. The simulations will prompt students to

consider connections among concepts and have a better understanding of the principles behind them. The Teacher will stimulate the learning process by asking students to explain their knowledge, justify their positions, and discuss the consequences of alternative interpretations. These new learning will influence students' perception of how well they can link theoretical knowledge to practical skills, an important focus in this study.

The Active Experimentation Stage will be the final stage of the learning cycle. It will be in the skills lab and the students will undergo practical lessons to show the skill they have acquired. As the theory of Kolb suggests, it is an attempt to put into practice what has been acquired. It will hence be the stage that students will be practically practicing the skills. Their experiences at this stage will reinforce or reshape their perceptions of competence gained to perform the skill.

Role of Readiness as a Moderating Variable

Within the framework of the current research, the readiness is identified as a moderating factor that may to determine how students interact with the steps of Experiential Learning Cycle of Kolb. Hao (2016) claims that readiness is one of the factors that determine the perception and learning experience of students in flipped classrooms. The motivation, self-directed learning capacity and technological readiness of students can influence the effectiveness of their working with pre-class materials (Concrete Experience), contemplation of learning (Reflective Observation), building new concepts (Abstract Conceptualization) and knowledge implementation (Active Experimentation). Thus, although readiness is not a primary variable of interest, it is recognized as a moderating or explanatory variable, which might affect the perceptions of theoretical knowledge and practical skills acquired by the learners with the use of the flipped classroom approach. According to Kolb (1984), change cannot take place without experiences. Thus, the students should be in a position to engage in new experiences fully, freely

and without prejudice (Concrete Experience), to view the same in various perspectives (Reflective Observation), to relate their observations to theories (Abstract Conceptualization) as well as to carry out these theories practically (Active Experimentation). In the process, the students are constantly updating, challenging, and refining their views about learning and acquired competence. These stages would add to the perception of the students concerning their capabilities in learning, practicing, and memorizing nursing skills. This theoretical lens therefore provides a basis for understanding how the flipped classroom model can influence students' perceptions through guided experiential learning.

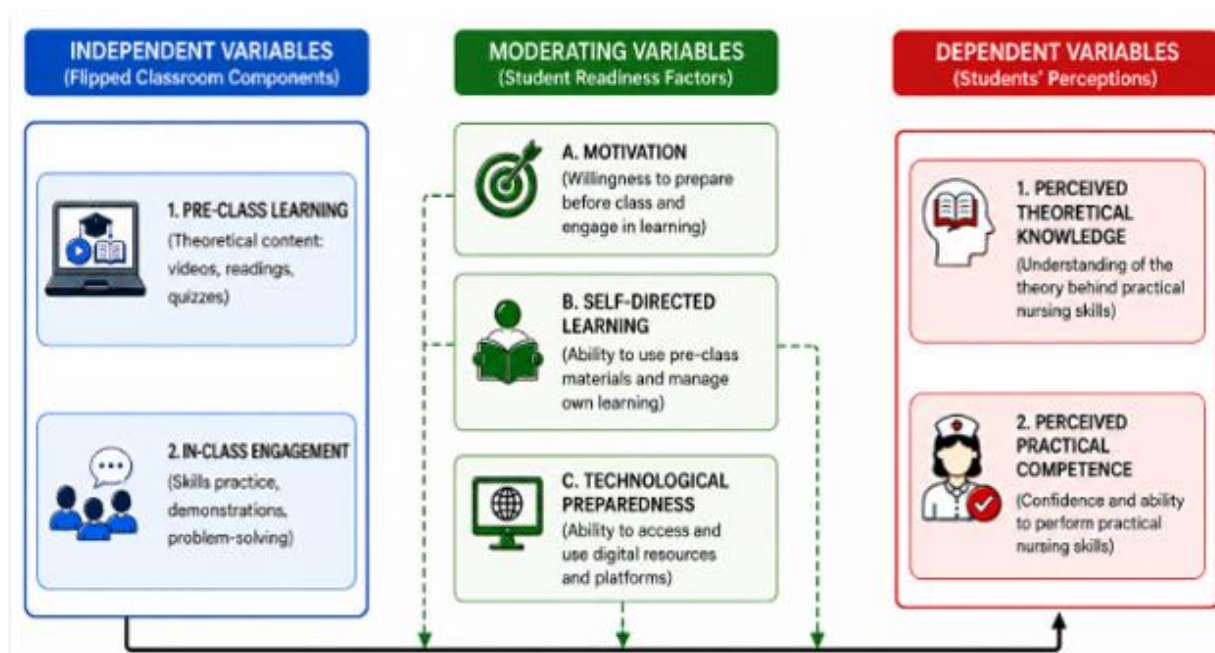


Figure 3: Conceptual Framework

How the Concepts Work Together

The independent variable is the Flipped Classroom Approach, represented by two main components; **Pre-class learning** where students access instructional videos, reading materials, and quizzes before attending class. This enables them to acquire foundational theoretical knowledge independently. And **In-class engagement** where classroom time is devoted to demonstrations,

practical skills practice, discussions, and higher order thinking activities. This allows students to apply and reinforce the knowledge gained during pre-class learning. These flipped classroom components are expected to have a direct effect (shown by the solid black arrow) on students' perceptions.

The dependent variable is Students' Perceptions, measured in two dimensions: **Perceived theoretical knowledge** which is the students' perception of how well they understand the theory underpinning practical nursing skills. And **Perceived practical competence** which is the students' perception of their confidence and ability to perform practical nursing skills.

Moderating variables; The framework also proposes that the relationship between the flipped classroom components and students' perceptions is influenced by three student readiness factors: **Motivation** which is the students' willingness to prepare before class and actively participate during learning, **Self-directed learning**, which is the students' ability to manage their own learning, study independently, and utilize pre-class learning resources effectively, and **Technological preparedness**, which is the students' ability to access and use digital technologies and online learning platforms required for the flipped classroom. The green dotted arrows extending from motivation, self-directed learning, and technological preparedness to the main black relationship line indicate moderation. This means these factors do not directly cause better perceptions; rather, they change the strength or effectiveness of the relationship between the flipped classroom approach and students' perceptions.

Variables in this Study

The *independent variable* in this study is “the flipped classroom method”

The *dependent variables* are “the perception of learning in terms of theoretical knowledge behind the practical nursing skills” and “the perception of learning in terms of competence gained to perform practical nursing skills”.

The *moderating variable* is students' readiness for flipped classroom learning, which includes motivation, self-directed learning, and technological preparedness. Readiness may influence the extent to which students engage in the experiential learning process and, consequently, their perceptions of learning and competence.

Operationalization of Additional Terms

Baccalaureate Nursing Students are individuals that are enrolled and are undertaking the Bachelor of Nursing Science program.

Perception in terms of Theoretical Knowledge refers to how the students subjectively assess their understanding, reasoning, and confidence in the foundational principles, concepts, and theories relevant to performing a given nursing skill. It will include a self-evaluation of their understanding of important theoretical ideas, their capacity to use theoretical knowledge in clinical scenarios, and their self-confidence in theoretical knowledge.

Perception of Practical Competence refers to the self-perceived competence of the student: the subjective view of the student as to his or her competence in executing a particular nursing skill. It includes their own evaluation of whether they can transfer theoretical knowledge to clinical situations in the real world and whether they feel capable of executing that nursing skill safely and efficiently.

Practical Nursing Skills are the essential hands-on abilities and techniques that nurses must possess to provide effective and efficient patient care.

Competence in practical nursing skills is to the capability of the nurse to execute hands-on tasks with accuracy, safety, and confidence. It involves mastery of the skill and requires technical proficiency, effective coordination, precision, and a clear understanding of the rationale behind each action, as well as the capacity to adapt techniques to meet patient-specific needs.

Flipped Classroom Method is the instructional strategy upon which the students' perceptions are being investigated. Students are engaged with content prior to real class time by watching videos, reading a chapter in a textbook, power point notes, attempting a quiz and making a reading report highlighting their areas of learning and those not well understood. Real class time is used for reviewing the quiz, the reading report and discussions to correct misunderstandings and address areas that were not well understood, case studies, small group activities, practical demonstrations and hands on practice.

Readiness refers to the degree to which learners are prepared and motivated to engage in self-directed, technology-supported, and active learning experiences before and during the flipped classroom process.

Summary

This chapter introduces the topic under study and provides its background, statement of the problem, purpose of the study, research question, objectives, and significance. It also presents the theoretical framework, which clearly explains the concepts of the study, the variables, and the operationalization of key terms. The next chapters will consist of Chapter Two, where a detailed literature review will be provided, and Chapter Three, where the research methodology and design will be described.

Chapter Two: Review of Literature

This chapter reviews literature related to baccalaureate nursing students' perceptions of learning practical nursing skills using the flipped classroom method. It is structured to build a clear and logical argument, beginning with the expectations of nursing competence and the existing gaps in achieving these expectations. It then examines the limitations of traditional teacher-centered approaches, which have historically dominated nursing education. The chapter then explores the emergence of student-centered teaching methods as innovative approaches to improve learning outcomes, with particular focus on the flipped classroom as the independent variable of the study. It examines students' perceptions of learning through the flipped classroom approach as the dependent variable, and links the flipped classroom to Kolb's Experiential Learning Theory to explain how students transform experience into learning. It considers the moderating role of students' readiness, including motivation, self-directed learning, and technological preparedness, influencing how students engage with and benefit from the flipped classroom, and finally highlights the existing research gap, noting that despite global evidence supporting the flipped classroom, its application in nursing education in Uganda remains underexplored, thereby justifying the need for this study.

Practical Skill Expectation of a Nurse in the Clinical Area (Competence Requirement and Gap)

To provide high-quality care, the nurses must be very competent in performing practical skills (Burton, 2022; Ke et al., 2023). Nurses around the world are required to demonstrate a high degree of competence and expertise in performance of practical skills to ensure safe, effective, and evidence-based care (Ke, 2023; Wang et al., 2022). This expectation demands nurses to apply critical thinking, and adapt to rapidly evolving healthcare technologies in order to meet the complex demands of modern clinical practice (Ke, 2023; Wang et al., 2022). This is heavily

dependent on the effectiveness method employed to teach the nursing students. Traditionally, skill development emphasized completing tasks with the help of rote memorization and return demonstration under supervision by the teacher (Giddens et al., 2022). However, this approach offered limited opportunities for critical thinking and problem-solving (Ke, 2023; Whelan, 2019). Over time, nursing education has shifted towards competency-based models incorporating accurate execution of skills, high-fidelity simulation, and structured feedback systems (Gregersen et al., 2021; Wang et al., 2022). Globally, there is increasing emphasis on integrating theoretical knowledge with practical application to produce competent graduates (WHO, 2022; Giddens et al., 2022).

In Africa, practical competence development is essential, especially in resource-constrained settings where procedural accuracy directly affects patient outcomes (Hilleren et al., 2022; Zakumumpa, 2020). Although simulation and guided practice are being adopted, challenges such as limited resources and high student-teacher ratios persist (Bvumbwe & Mtshali, 2018; Drasiku et al., 2021). Uganda has its expectations of nursing students aligned with the global agenda on competency-based education (Nampiima et al., 2024; Ocan et al., 2019). The scope of practice of nurses in Uganda puts a big emphasis on practical competence and the ability to display, think and make quick and substantial decisions. To be able to cope with complex clinical situations, nurses must master different procedures precisely and safely, and this fact is considered essential (Nampiima et al., al.; “Scope of Practice for Nurses and Midwives in Uganda,” 2022). The connection between The theory and practical aspects of the skill is primary within the training of nurses as they gear up to the multifaceted aspect of the real-life experiences in the healthcare setting (Bugai & Nikendei, 2016; Nampiima et al., al. Ocan et al., al.; Orakova et al., 2024; Val & López-Bueno, 2024). This guarantees that nurses will graduate with the practical skills required to address the needs of patients and tackle the demands of an increasingly

complex healthcare system. The growth of practical competence in Uganda can be seen as both a global and a local response. According to the Scope of Practice of Nurses and Midwives in Uganda (2022), the current nursing education in Uganda addresses the international competencies requirements. Skills laboratories are a safe space where the students can rehearse and perfect the skills they will be required to use in the clinical practice (Nampiima et al., 2024). Repeated practice, direct feedback, and patient-centered care are greatly emphasized in training. However, challenges such as high student-teacher ratios and limited resources are still outstanding (Bugai & Nikendei, 2016; Val & López-Bueno, 2024). Gaps therefore remain in linking theory to practice and ensuring students graduate with adequate competence (Namulondo, 2020). This gap in competence calls for exploration of innovative students teaching methods such as the flipped classroom to have the gap closed.

In summary, nursing education in Uganda and worldwide highly considers the development of practical competence to guarantee effective and safe patient care. The developed nations concentrate on competency-based teaching that combines theory and practical knowledge. In Africa, the attempts to standardize nursing curricula, new approaches including simulation and the flipped classroom are dealing with context-specific challenges. In Uganda, nursing education continues to evolve in alignment with global standards, prioritizing clinical competence, critical thinking, and experiential learning through skills laboratories and clinical placements. Although structured and consistent, the traditional teacher-centered approach limits active engagement and critical thinking necessitating exploration of more student-centered methods such as the flipped classroom.

Traditional Teacher-Centered Approach and Its Limitations

Nursing education, in both international and Ugandan contexts has historically been focused on a teacher-centered approach, where the teachers lead the process. The instructor

serves as the primary source of knowledge, directing lessons and determining instructional methods (Baker et al., 2021; Torkshavand et al., 2020). Students play a passive role, mainly listening, memorizing, and reproducing information (Burton, 2022; Wang et al., 2022). Although this model provides structure and consistency, it limits interaction, engagement, and critical thinking (Burton, 2022; Wang et al., 2022). According to Burton (2022), these restrictions bring boredom and lack of focus, and they discourage further learning. It has been found that lectures are effective in delivering theoretical principles but often do not establish any connection between learning in the classroom and practical work in a health facility (Johnson et al., 2020; Sullivan, 2022). In Uganda, large class sizes, limited resources and small numbers of faculty members further reduce opportunities for individualized feedback and hands-on practice (Kagoda and Muwanga, 2021; Nansubuga et al., 2023). Assessment in this approach often focuses on memorization rather than practical competence (Johnson et al., 2020). As a result, students may complete training without sufficient confidence or readiness for clinical practice (Namubiru et al., 2020; Ocan et al., 2019). Due to these limitations, there has been a shift towards more interactive and student-centered approaches to improve learning outcomes.

Student-Centered Approaches in Nursing Education

Student-centered learning encourages learners to be in charge of their own learning while teachers act as facilitators. The student takes charge of exploring, practicing and learning from the material, with the teacher guiding rather than dominating the class: Students mainly plan, carry out and review their own learning experiences (Berg & Lepp, 2023; Hung et al., 2020; Mohamed et al., 2018). It emphasizes active participation, critical thinking, and self-directed learning (Ke et al., 2023; Khayat et al., 2021; Pivac et al., 2022; Sullivan, 2022; Talan & Gulusene, 2019) These approaches aim to bridge the gap between theory and practice and prepare students for complex healthcare environments (Ke et al., 2023; Khayat et al., 2021).

Globally and in Africa, methods such as simulation-based learning, video demonstrations, virtual reality, flipped classroom, and collaborative learning are widely used (Pivac et al., 2022; Sharma, 2017; Chen et al., 2020; Gasemi et al., 2020).

In Uganda, approaches such as problem-based learning, simulation, and Community-Based Education and Service (COBES) are gradually being adopted despite resource limitations (Kiguli-Malwadde et al., 2024; Mpalanyi et al., 2020; Najjuma et al., 2020; Nakate et al., 2023; Obeagu et al., 2025). Overall, research has proved student-centered teaching methods as an effective approach to teaching in the healthcare disciplines that integrate practical skills and theoretical knowledge (Berg & Lepp, 2023; Hung et al., 2020; Mohamed et al., 2018). A qualitative study, conducted in 2023 and targeting 50 undergraduate nursing students in the Middle East, found that active student learning approaches including discussions and cooperative activities facilitated sounder understanding, critical thinking and connection of theoretical knowledge with practice. The supportive learning condition and the responsibility be in-charge of their own learning appealed to students (Kalu et al., 2023). Students generally report higher engagement, satisfaction, and improved critical thinking with these methods, although challenges such as time constraints and limited resources remain (Kalu et al., 2023; Khairy et al., 2024; Suwa, 2022). Among these approaches, the flipped classroom has emerged as a particularly promising strategy as it has gained significant recognition in many learning institutions over the years, and is now experiencing a high degree of general acceptance (Bhat & Bhat, 2018; ke, 2023, (Gilboy, et al., 2015; Hoover 2018; Ne, et al, 2024).

Flipped Classroom as a Learner-Centered Strategy

Flipped classroom is the student-centered model where students have interactions with instructional resources before the lesson. The actual in class lesson period is dedicated to interactive and hands-on activities that involve the skills (El-Banna et al., 2017; Pivac et al.,

2021). The model encourages critical thinking, motivation, participation, and in-depth insights into concepts. Research has shown that the flipping the classroom can enhance the perceived competence and theoretical knowledge of the nursing skills of students compared to the traditional methods (Ke et al, 2023; Pivac et al., 2021; Zaitoun et al., 2023). The flipped classroom model provides the students to study instructional material prior to the lesson, and the interactive and practical tasks are offered during the face-to-face lessons (El-Banna et al., 2017; Pivac et al., 2021). This approach fosters reflection, analytical thinking, immediate feedback, and deeper understanding of concepts while aligning with Kolb's Experiential Learning Theory (Ke et al., 2023; Zaitoun et al., 2023). The transfer of primary learning to students by flipping the classroom promotes active experimentation and reflection which is in line with the Experiential Learning Theory by Kolb, and facilitates the acquisition of skills. The flipped classroom method instead of having the teacher introduce new concepts to the students during classroom time, it allows the students to learn new topics and interact with learning materials on their own, prior to the classroom time, in many ways which makes the classroom time be spent on interactive and hands-on activities (El-Banna et al, 2017; Ke et al, 2023, Nes, et al, 2021; sillivan, 2022). This allows more personalized learning experiences in which students can go through pre-class materials at their own pace and review materials where necessary and also get clarification on the same during classroom time. This is an individualized model that suits all types of learning styles and preferences (Tucker, 2012, ke et al., 2023; Nes, et al 2021). The integration of knowledge and practical experience can assist baccalaureate nursing students to prepare to work in the complexity of nursing (Betihavas et al., 2016).

In numerous studies, the flipped classroom was found to be efficient in improving theoretical knowledge, applicable skills, and self-esteem (Betihavas et al., 2016; Gilboy et al., 2015; Ke et al., 2023; Nes et al., 2021; Sullivan, 2022). Students like the fact that it is flexible,

interactive, and relevant to the real world (Smith et al., 2021; Tan et al., 2017; Oliver and Luther, 2020). According to Gilboy et al., 2015; Ke et al., 2023, the flipped classroom can be used to enhance student engagement, grades, satisfaction of students and educational quality in many aspects. Betihavas et al. (2016) have shown that learners who acquire the nursing skills in flipped classroom showed higher clinical performance and confidence levels than those who studied in conventional classrooms. Ke et al., (2023), notes that flipping the classroom enhances the capacity of students to learn and to use the practical nursing skills in an effective manner. It suggests that using the flipped classroom methodology supports students to better understand and show the ability to apply practical nursing skills. Smith et al.,2021; Tan et al., 2017 examined the relationship between a flipped classroom and nursing students' clinical reasoning and found that the flipped approach led to clear improvements over standard lectures. Oliver and Luther (2020) defined five different research investigations that looked at the flipped classroom approach with nurse graduates. Two of these investigations on student grades revealed that students who followed flipped learning either had no changes or achieved better grades in their quizzes or exams. In two studies that investigated performance in academics reported that the students' academic results after flipped learning varied from performing as well to remarkable success on quizzes and exams. In four research studies, it was found that students were more satisfied with their learning after taking part in a flipped classroom. Given its emphasis on active learning, pronounced success, it is important to understand how students perceive learning through this approach.

Students' Perceptions of Learning in Flipped Classrooms

Research has shown that students and skill mastery. Studies have indicated that students perceive flipped classrooms positively in terms of engagement with regard to interaction and the acquisition of skills. According to Pivac et al. (2021), nursing students were more confident in

performing clinical procedures when the teaching used a flipped approach. Likewise, Zaitoun et al. (2023) noted that the participants of the study enjoyed the ability to learn interactively and through the support of peers, an experience that improved the comprehension of theoretical concepts behind practical learning. Hessler, (2019), states that many students perceive the flipped classroom method as a very interesting method of teaching that requires them to focus on taking an active part in their own learning, which helps them grasp the content better. Sullivan's (2022) study suggested that nurse practitioner students experienced more confidence in applying their knowledge and skills due to higher engagement which flipped learning style allowed them to achieve. The flipped classroom practice is believed to prepare students better for student-led classroom assignments, according to Della Ratta, 2015; Mover, 2018; Sinouvassane & Nalini, 2016. In their 2016 study, Betihavas et al. looked at what nursing students think about the flipped classroom and found they really value the freedom to learn in different ways and the active roles they assume in their own learning. They felt satisfied, empowered, confident and competent in applying learned skills in real-world clinical settings after engaging with the flipped classroom method. (Mudd & Silbert-Flagg, 2016; Sullivan, 2022; Vetter & Latimer, 2017) felt more confident and competent. Hessler (2019) explored the perceptions of graduate nursing students towards the flipped learning technique and identified seven key themes, including; adapting to change is not easy; role of students sense of workload is a significant factor; the process of flipped learning is participatory; not all flipping is the same; post-flipped-student-reflection provides more clarity; and perceptions of students after the course is more insightful. The study demonstrated that students' responses could be meaningfully grouped under these themes: "change is hard; how difficult the course seems can matter; flipped learning keeps evolving; not always is the best the easiest to do; flipped learning is not the same as simply flipping pages; we only see results after we grasp the material; and we can only learn from our past experiences."

Students did not think the flipped classroom was easy to take on and it meant they had to prepare more before class, but they took part enthusiastically and felt they gained a better understanding from it than in the traditional approach (Hessler, 2019). Murphy et al. (2021) analyzed the information gained from focus groups with graduate nursing teachers and students. Teachers found flipped learning to be better and more productive than the old traditional teaching-learning method. According to teachers, students were motivated to join in with class activities when they received points in advance (Murphy et al., 2021). The findings in the study by Murphy et al. (2021) resemble those by Hessler (2019) learners found adapting to flipped classroom learning challenging but at the same time, felt that they enjoyed participating more actively, efficiently using their time and being more knowledgeable in the subject. Chen and Wang (2022) explored the perceptions of nursing students regarding their involvement and interaction experience in a flipped classroom setting. Their results showed that the learners loved the active process of learning and group work enabled by the flipped classroom approach. Nevertheless, Lee and Kim (2020) confirmed multiple obstacles encountered by learners such as technological problems and time management that may influence student engagement. Just like the results on online learning preparation (Sebuliba, 2022), the perception of the nursing students regarding the use of flipped classroom techniques reveals that self-directed learning and the availability of resources are the factors that impact the acquisition of skills. The research by Sebuliba (2022) showed that self-directed learning skills, time management, and institutional support were the factors that impacted the readiness of nursing students to pursue online learning. Although students were mostly sure of their capabilities, the obstacles like the lack of technological access influenced the learning process. This evidence indicates that the views and preparedness of learners are a significant determining factor in the effectiveness of new teaching strategies like the flipped classroom. According to Greenwood and Mosca (2017), and Mudd and Silbert-Flagg (2016), the

majority of the negative reactions of the students were associated with a poor understanding of the assignment requirements that are related to flipped learning. Students have also reported that a more detailed description of the rationalization of the teacher in choosing this method would have been useful. In a similar way, Evans et al. (2019) also observed that the extent of preparation and learning had a noticeable impact on students who took part in and were generally satisfied with the flipped classroom approach.

Greenwood and Mosca (2017) and Mudd and Silbert-Flagg (2016) assert that the challenge of comprehending their workload in flipped learning was the center of a lot of negative student opinion. They also felt that the teacher should have spoken about the reason behind adopting this kind of teaching style. Barbour and Schuessler, (2019); Oliver and Luther (2020) note that to make flipped learning an effective model, a teacher should explain students the steps to follow and make sure they understand what is expected of them. All in all, students describe their experiences at flipped classrooms as positive (Pivac et al., 2021; Zaitoun et al., 2023; Hessler, 2019; Sullivan, 2022). Some believe that it can be rather challenging at first, but the majority of researchers acknowledge that it has advantages in terms of self-directed learning and a better comprehension (Hessler, 2019; Murphy et al., 2021; Chen and Wang, 2022). Research suggests that students' technological readiness and support provided by institutions are key determinants of success (Sebuliba, 2022). Clear explanations of the workload and the rationale of the teacher towards the method is also appreciated by students (Greenwood and Mosca, 2017; Barbour and Schuessler, 2019). In Uganda, the research on the topic of flipped classroom in the field of nursing is limited as most of the studies still refer to traditional pedagogy (Drasiku et al., 2021; Ocan et al., 2019).

Students' Readiness as a Contextual Factor

Although perceptions of learning are the main target of this study, the readiness of students to the flipped classroom learning can affect the perceptions and outcomes. Preparedness includes the motivation, the ability of self-directed learning, and technological preparedness (Hao, 2016; Hogenson et al., 2018; Sebuliba, 2022). Research shows that learners who are more equipped and assured of their capability of self-directing their learning process and working with technology, excel in terms of ability to study materials in advance and actively contributing to the practical work. According to Hao (2016), preparedness by undergraduates is a major determinant of their interaction and the level of learning in the flipped classrooms. Hogenson et al. (2018) emphasized that the perceived preparedness of nursing students influenced their contribution to the discussion and learning in practice. Sebuliba (2022) noted that learners with fewer self-directed learning abilities or lacking access to technology were challenged by the inability to stay on pace with course material information and skill practice. Substantial literature suggests that flipped classes are beneficial at improving how students perceive their learning of practical nursing skills, especially when the learners engage and reflect on their experiences. Nevertheless, preparedness can act as a moderator to this effect and the way students perceive and enjoy the flipped classroom approach.

In summary, student-centered teaching methods in nursing education demand active learning, critical thinking, and student autonomy, helping learners better connect theoretical knowledge to clinical practice. Simulation, video demonstrations, interactive learning, and the flipped classroom are just a few of the approaches that are being recognized worldwide and in Uganda to promote student engagement and clinical competence. But as a result of available resources in various institutions in Uganda, the traditional teacher-centered approaches are more common but less fulfilling due to overcrowded classes with fewer nurse educators and therefore, less

individual attention. It is the limitations of the traditional methods which have led to an increasing popularity of student centered learning among the Ugandan nursing students, Based on these insights, it is necessary to comprehend the role the flipped classroom plays in enhancing learning via experiential and reflective processes in order to appreciate its role in students' learning of practical nursing skills.

While evidence shows that the flipped classroom improves both theoretical understanding and practical competence, its effectiveness can be better understood through Kolb's Experiential Learning Cycle, which explains how students transform experience into learning.

Flipped Classroom and Kolb's Experiential Learning Cycle

The flipped classroom builds theoretical knowledge in the form of solid experience and reflective observation, as well as builds perceived mastery of practice in the form of abstract conceptualization and active experimentation. Consistent systematic reviews and meta-analyses show that the flipping the classroom is superior to traditional techniques in nursing education as it enhances the level of skills competence, academic achievement, and engagement (Ke et al., 2023; Nes et al., 2021). Its orientation to the cycle by Kolb promotes learning through incorporating the structured pre-class preparation and the active application during classes. Through concrete experience and reflective observation, the flipped classroom enhances understanding the theoretical knowledge about practical skills. Also, through abstract conceptualization and active experimentation, it fosters perceived competence in practical skills. Systematic reviews and meta-analyses consistently demonstrate that flipped classroom is better than the traditional approaches in nursing education, including acquisition of competence of skills, academic achievement, and involvement (Ke et al., 2023; Nes et al., 2021). Its integration into the cycle of Kolb makes learning more powerful as it incorporates the organized pre-class preparation with active class implementation.

Interacting with video recordings and content before class enables students to develop confidence in a self-paced manner this is the CE stage. During the RO stage, reflections are developed during in-class discussions and brainstorming, the flipped classroom boosts theoretical knowledge through the CE stage and RO stage of Kolb. El-Banna et al. (2017); Pivac et al., (2021), reported that student nurses described a better understanding of theoretical knowledge because of the freedom to review the materials. Hoover et al. (2018) observed that there were more confidence levels towards theoretical knowledge especially when students were had prior experience with the content before the actual class. In Uganda, traditional techniques restrict that kind of involvement, and the students find it difficult to observe demonstrations in crowded classes (Drasiku et al., 2021).

The flipped classroom also supports perceived competence by creating sufficient practice opportunities, which aligns with the stages of AC and AE in Kolb. In-class assignments such as simulations and practical work help students to combine and utilize knowledge (Ke et al., 2023). Park and Suh (2021) and Betihavas et al. (2016) reported increased confidence in such skills as wound care and better clinical performance, respectively. Self-assessed competency and satisfaction in the adult health nursing were considerably greater in the flipped classroom teams (Bmcmededuc.biomedcentral.com). In Uganda, there are few practice options, which limit competence, and graduates do not have confidence (Gamuhay et al., 2019; Relloso et al., 2021).

In summary, the flipping the classroom increases perceived competence by creating sufficient practice opportunities, which aligns with the stages of AC and AE of Kolb's cycle. In-class assignments such as simulations and practical work help students to integrate and utilize knowledge (Ke et al., 2023). Park and Suh (2021) and Betihavas et al. (2016) reported increased confidence in such skills as wound care and better clinical performance, respectively. Self-assessed competency and satisfaction in the adult health nursing were considerably greater in the

flipped classroom teams (Bmcmededuc.biomedcentral.com). In Uganda, there are few practice options, which limit competence, and graduates do not have confidence (Gamuhay et al., 2019; Relloso et al., 2021).

Flipped classroom supplements theoretical knowledge based on CE and RO and promotes perceived confidence in applied skills based on AC and AE. It enhances the learning outcomes through facilitating engagement, self-efficacy, and critical thinking throughout the learning cycle introduced by Kolb because studies also reveal the increase in student satisfaction, motivation, and metacognitive skills in flipped classrooms (Gilboy et al., 2015; Ke et al., 2023). All these results demonstrate that the flipped classroom can help fill the gaps in applied competence that are evident in most nursing environments. Nonetheless, the application and success of the flipped classroom method to nursing education in Uganda remains a relatively underexplored field, despite its proven efficiency in other countries.

In Uganda, the use of Flipped Classroom Method in Nursing Education is Still Underexplored.

Despite global evidence, the use of flipped classroom in nursing education in Uganda remains underexplored (Drasiku et al., 2021; Ocan et al., 2019). This section emphasizes the need of local studies to comprehend the potential of this innovative student-focused to enhance teaching and learning in practical nursing skills in Uganda's unique educational context.

The Need for Localized Research to fill the gap

The nursing education in Uganda is characterized by numerous issues, such as overcrowded classes, shortage of teachers, and use of teacher-centered approach of learning (Drasiku et al., 2021; Kagoda and Muwanga-Zake, 2021; Nampiima et. al., 2024). These barriers prevent interaction, critical thinking, and development of skills consequently, graduates are usually not ready to work in the clinical sphere (Namubiru et al., 2020). Role play and simulation

are promoted as a way of innovation in the Ministry of Education and Sports (2018), although not all teachers use them, as they are not trained to do so (Mulema & Ndagire, 2020). The flipped classroom presents a chance to deal with these difficulties due to the possibility to use technology to improve the learning experiences and promote the development of practical competence (Pivac et al., 2021). It is consistent with the model proposed by Kolb, which contributes to building the competence with all four stages of experience, responding to the demands of situational instructional approaches (Croft et al., 2021). Although there is global evidence supporting the flipped classroom, its use and effectiveness in nursing education in Uganda remains underexplored. Therefore, this study seeks to describe the baccalaureate nursing students' perception of their comprehension of theoretical knowledge that underpins practical nursing skills and competence acquired to perform practical nursing skills after being taught using of the flipped classroom approach. The findings of this research may be useful to guide nurse teachers to consider the application of effective teaching methods that can facilitate student interest, critical thinking, and practice acquisition. The findings might also be used in curriculum design and development in nursing programs, thus resulting in the development of competent and confident graduate nurses to offer quality care to patients.

In summary, this chapter has presented both the world-wide and Ugandan evidence on the learning of practical skills by baccalaureate nursing students through the flipped classroom method, guided by the Experiential Learning Theory of Kolb. Evidence shows that the flipped classroom has been proven to improve theoretical understanding, perceived competence, and overall learning outcomes through the facilitation of engagement and self-efficacy, and critical thinking. The approach combines both theory and practice as an active and reflective learning experience, overcoming the shortcomings of traditional teacher-centered instruction. However, in Uganda, nursing education is still largely traditional in nature with less practice opportunities, big

classes and very few nurse educators, aspects that limit the competence development of student. Despite the gradual adoption of student-centered approaches to learning, including problem-based and simulation-based learning, the flipped classroom has not yet been fully explored in the context of Uganda. This research therefore, aims to describe how baccalaureate nursing students perceive their knowledge about the theoretical base of practical nursing skills and competence acquired to perform those practical skills when taught using the flipped classroom approach. The results of this research may be useful to inform nurse educators to consider the application of effective teaching methods that can facilitate student interest, critical thinking, and practice acquisition. The findings might also be used in curriculum design and development in nursing programs, thus resulting in the development of competent and confident graduate nurses who will provide good quality patient care. In the following chapter, the researcher describes the methodology that will be used in this study as it outlines the research design, population, sampling procedures, data collection instruments, and the analysis methods that were used to accomplish the objectives.

Chapter Three: Methodology

This chapter presents the research design, the population under study, the setting where the research was conducted, sampling strategy, and sample size estimation, as well as inclusion and exclusion criteria. The justification of methodology choices is also presented and supported with literature. The chapter also describes the collect data plan, the data collection tools, the data analysis and presentation plan, validity, reliability, and the ethical considerations of the study.

Research Design

This study employed a descriptive cross-sectional design of quantitative research approach. Quantitative research is suitable for this study as it allows for objective description of student perceptions by use of structured tools and statistical analysis (Polit & Beck, 2017). The descriptive cross-sectional study design fits well with the study's focus on describing the perception of baccalaureate nursing students' perception of learning practical nursing skills when taught using the flipped classroom method at a Ugandan nursing education setting. It is suitable for study in the environment where the flipped classroom has not been researched. Polit and Beck (2017) highlight the descriptive cross-sectional design as best fit for describing phenomena in educational research.

Population

The general population in this study was baccalaureate nursing students in Uganda, the target population was the baccalaureate nursing students at the study site, and the accessible population were the first-year students enrolled in the Bachelor of Nursing Science program at the study site.

Setting

This study was carried out in non-government, university in central Uganda, which offers a Bachelor of Nursing Science program. The institution admits students from both rural and

urban settings across Uganda and follows a nationally accredited curriculum. This choice of this setting was made because it mirrors the broader Ugandan nursing education system in general, in regard to curriculum structure, student characteristics, and regulatory standards. Therefore, it is a representative and relevant site for studying students' perceptions of their learning when taught using the flipped classroom method.

Sample

The participants for this study were first year baccalaureate nursing students. This specific group was chosen because they were in their very first developmental phases of learning practical nursing skills. Their perceptions provides insights into how this teaching method may influence foundational learning.

Sample Size

The planned sample size was 118 students, based on the maximum number of the intended accessible population. The sample size was manageable and sufficient, maximizing representativeness for this descriptive cross sectional study. Cochran's formula for finite populations was used to calculate the size of the sample. According to Ahmed (2024), this method was appropriate when the total population is known and relatively small, as was the case with this study's accessible population ($N = 118$). Cochran's formula for finite populations, is suitable for small populations and descriptive studies estimating proportions (Cochran, 1977). The formula accounts for the population size, confidence level, margin of error, and expected proportion.

Cochran's Formula:

Initial formula for large populations

$$n_0 = Z^2 \cdot pq / e^2$$

where;

n_0 is the initial sample size estimate

Z is the Z score corresponding to the confidence level (1.96 for 95% confidence level)

P is the estimated proportion of the population with the attribute of interest (0.5 used for maximum variability)

q is $1-p$

e is desired margin of error typically 0.05

So,

$$\begin{aligned} n_0 &= Z^2 \cdot p \cdot (1-p) / e^2 \\ &= (1.96)^2 \cdot 0.5 \cdot (1-0.5) / (0.05)^2 \\ &= 3.8416 \cdot 0.25 / 0.0025 \\ &= 0.9604 / 0.0025 \\ &= 384.16 \end{aligned}$$

Adjusted for a finite population ($N = 70$):

$$n = n_0 / (1 + (n_0 - 1/N))$$

where;

n is the adjusted sample size

n_0 is the initial sample size

N is the population size

$$\begin{aligned} \text{So, } n &= 384.16 / (1 + (384.16 - 1/118)) \\ &= 384.16 / (1 + 383.16/118) \\ &= 384.16 / (1 + 3.247) \\ &= 384.16 / 4.247 \\ &= 90.45 \end{aligned}$$

Therefore, the adjusted minimum sample size was 91 participants (rounded up from 90.45 because every participant is counted as a whole). This represents the desired minimum number of students required to obtain statistically valid results from the population of 118. The purpose of calculating the minimum size of the sample was to ensure sufficient statistical power for descriptive analyses, such as calculating means, frequencies, and percentages for Likert-scale responses on the Flipped Classroom Perception Questionnaire (FCPQ). A smaller sample would increase the risk of Type II errors and reduce the generalizability of the findings (Cochran 1977 Sampling Techniques: Free Download, Borrow, and Streaming: Internet Archive, 2023). Including at least 91 participants would present credible evidence on the how flipping the classroom influences the perceptions of students about their ability to learn. It would give accurate estimations with a margin of error of 5% and confidence of 95% which was applicable in this pilot study given that it was a descriptive study which is in an educational setting (Cochran, 1977; Polit and Beck, 2021). Since the total population was small and the sampling method was convenience, the study targeted to include all the accessible population in the study to ensure that the minimum threshold is met, and non-response and dropouts accommodated

Sampling Plan

The study utilized convenience sampling approach to recruit participants. Polit and Beck (2017) indicate that convenience sampling is best suited to use in small and convenient populations. This minimized the selection bias and ensured all students who qualify to participate in the study were included and provided consent to participate. All first-year nursing students that met the inclusion criteria and were available during the time of the study were invited to participate. The first-year class was made of 118 students and these were all present and were taught the different skills using the flipped classroom approach but, only 116 were included in

the study because the other 2 had prior training in nursing and had ever studied about the skills being taught, this would influence their perception of learning (they met the exclusion criteria).

Recruitment

The researcher presented the study during one of the scheduled classes and explained the purpose, voluntary decision, confidentiality, and data protection. An informed consent was given to interested participants to have them agree to the terms and sign. After consenting, the participants filled the FCRQ. This was done approximately a week prior to the flipped classroom sessions. They then fill the FCPQ immediately after the fourth flipped classroom session. The process of recruitment was ethical, non-coercive and voluntary.

Inclusion Criteria

Participants were first-year students undertaking the Bachelor of Nursing Science program at the study site.

Exclusion Criteria

Participants with any prior training or qualification in nursing were excluded because that would influence their perception of learning.

Data collection

Data was collected at two points using a descriptive cross-sectional approach. The first questionnaire; *the Flipped Classroom Readiness Questionnaire* (FCRQ) was administered before the flipped classroom sessions begin, to obtain a baseline description of students' readiness (motivation, self-directed learning, and technological preparedness). This readiness was considered a *moderating variable* that could influence perceptions. The first questionnaire; *the Flipped Classroom Perception Questionnaire* (FCPQ) was administered after the completing the four flipped classroom sessions to obtain a one-time description of students' perceptions of how

the flipped classroom supported their learning of theoretical knowledge and practical competence to perform nursing skills. Although collected at two different time points, each questionnaire provides a cross-sectional snapshot, and no pre–post comparison or hypothesis testing of change was conducted. All questionnaires were administered in the classroom and collected immediately to reduce information sharing among participants. Each tool took approximately 30 minutes to complete. Unique codes were assigned to each participant for anonymity. Completed questionnaires were stored in a locked cabinet, and electronic data was kept on a password-protected computer accessible only to the researcher and supervisor.

Description of the Tool

Data was collected using two researcher-developed structured questionnaires: the *Flipped Classroom Readiness Questionnaire (FCRQ)* developed from Hao (2016) and Sebuliba (2022) and the *Flipped Classroom Perception Questionnaire (FCPQ)* developed from Betihavas et al. (2016) and El-Banna et al. (2017). Both tools were aligned with the study objectives and Kolb's Experiential Learning Theory. A 4-point Likert scale where 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Agree*, and 4 = *Strongly Agree*. Mean scores were computed for each subscale, and score categories were established to provide meaningful interpretation: 3.5–4.0 = *Strongly Positive*, 2.5–3.49 = *Positive*, and below 2.5 = *Negative*. The FCRQ was administered one week before the first flipped classroom session to describe readiness (a moderating variable), while the FCPQ was administered immediately after the fourth session to describe perceptions. Both tools are attached in the Appendix.

Item Analysis

Flipped Classroom Readiness Questionnaire (FCRQ)

The purpose of the FCRQ was to describe students' readiness for flipped classroom learning in terms of motivation, self-directed learning, and technological preparedness a

moderating variable that could influence perceptions (Objective 3). It had two parts, A and B as detailed in the Appendix.

Part A: *the demographics section* consisted of four items that collect basic background information about the participants. These items included age, sex, previous exposure to flipped classrooms, and frequency of access to digital devices and internet. These variables helped describe the sample and provide contextual information that may influence readiness and perception scores. Demographic items were not scored and were included only in FCRQ because they do not change over time.

Part B: *The readiness section* which contained 15 *Likert-scale items* divided into three subscales: *Motivation*, *Self-Directed Learning*, and *Technological Preparedness*. Each item was scored from 1 to 4, with higher scores indicating greater readiness. Subscale scores were calculated by averaging the items within each domain. The overall readiness score was obtained by computing the mean of all 15 items. Score interpretation followed the predetermined categories: 3.5–4.0 = *High Readiness*, 2.5–3.49 = *Moderate Readiness*, and below 2.5 = *Low Readiness*.

B.1 Motivation Subscale (5 items: M1–M5)

This subscale had 5 questions M1-M5, which explained the interest of the student, his/her willingness, and eagerness to be involved in the flipped classroom strategy. Items focused on the attitudes that included excitement about reading before the classes, readiness to spend time outside classes, and the liking of active learning. A higher mean score indicated strong internal drive to engage in flipped learning.

B.2 Self-Directed Learning Subscale (5 items: SDL1–SDL5)

This subscale explained the capacity of students to plan, organize, and control their learning on their own. Skills reflected by the items include the ability to manage study time,

pursue further information, maintain attention, meet deadlines as well as reflect on the learning progress. High scores meant strong self-regulation, an essential requirement for success in flipped classrooms.

B.3 Technological Preparedness Subscale (5 items: TP1–TP5)

The scale under consideration evaluated the level of comfort and competence of the students with the technology needed to operate in flipped learning. It measured internet access, device usability, ease of navigation with digital learning contents and confidence with the online platforms of the university. Better scores indicated strong technological capacity to effectively interact with pre-class materials.

Flipped Classroom Perception Questionnaire (FCPQ)

The FCPQ described students' perceptions after experience with the flipped classroom approach during routine teaching. It contains 20 Likert-scale items, divided into two major subscales as detailed in the Appendix. Each item was rated on a 4-point scale, and subscale means were computed for interpretation.

Section 1: Perception of Theoretical Knowledge (10 items: T1–T10)

This subscale contains 10 questions that are designed to describe students' perceptions of how well they understood the underlying theory behind the practical nursing skills after the flipped classroom experience. Items capture clarity of pre-class videos, usefulness of reading materials, ability to pause and review content, clarity gained through class discussions, and ability to link theory to practice in the skills lab. Categories for interpretation were: 3.5–4.0 = *Strongly Positive Perception*, 2.5–3.49 = *Positive Perception*, and below 2.5 = *Negative Perception*. High scores indicate that the flipped classroom approach greatly enhanced theoretical understanding.

Section 2: Perception of Practical Competence (10 items: P1–P10)

This subscale is made of 10 questions P1 –P10 designed to describe perceived competence in performing practical nursing skills after the flipped classroom experience. Items capture application of theory during practice, improvement in clinical reasoning, opportunities for skill rehearsal, correction of mistakes, preparedness for real patient interaction, ability to set up equipment, and readiness to perform skills with minimal supervision. Categories for interpretation were: 3.5–4.0 = *high competence Perception*, 2.5–3.49 = *moderate competence*, and below 2.5 = *low competence*.

Flipped Classroom Implementation

The flipped classroom approach was implemented as the teaching method, guided by the Kolb's Experiential Learning Theory (1984). It was conducted in four sessions (one every week). Each session was devoted to a particular practical nursing skill (insertion of nasal gastric tube, administration of oxygen using a cannula, blood pressure, and intravenous cannulation). The application commenced by the teacher posting in advance the pre-class materials on the university learning platform a few days before the actual physical class for each skills session. These materials consisted of: a recorded video (5-10 minutes) that gave a step by step demonstration of the procedure, PowerPoint slides that were related to that skill, textbook chapters that refer to the theoretical background of that skill, and a reading reflection report assignment (the reading reflection report template presented in the Appendix). Before the physical class, Students interacted with the pre-class materials and tried out the skill on their own, at their own pace to build basic understanding. Videos also permitted pausing and rewinding so that one could gain some clarity, whereas readings added depth of theoretical knowledge and the reasoning behind every step that was followed in the process. Students were required to submit the reading reflection report at least one day prior to the classroom session to ensure that the teacher could get to read their reports and pay attention to the areas of misconception and

hard to grasp materials that could be covered consciously in the classroom. Reflection reports measured the understanding and encourage self-directed education; this was the Concrete Experience Stage. During the physical class sessions, students had the opportunity to discuss reading reflection reports, brainstorm and clarify hard points during in-class teacher-facilitated discussions reflecting on what they learned before coming to the classes. They performed the skill under the supervision of the teacher, and strengths/weaknesses will be evaluated to gain knowledge and confidence; this was the Reflective Observation Stage. Students then, participated in interactive activities, such as simulation-based scenarios, equipment setup, and skill performance with intentional errors introduced for them to identify and correct, role-play setups for problem-solving, and group planning of procedural steps and rationales. These activities encouraged active collaborative learning and promoted critical thinking and problem-solving by requiring theoretical synthesis and application of knowledge. The teacher facilitated this by challenging students to articulate and defend their reasoning; this was the Abstract Conceptualization Stage. Finally, students engaged in hands-on sessions to demonstrate the assigned practical nursing skill in the skills lab using standard equipment and mannequins, applying learned concepts in the presence of the teacher. The teacher used the checklist designed for each procedure to assess and evaluate students' performance (the checklists are presented in Appendix D). Students were given chance to evaluate their performance and receive individualized feedback from the teacher; this was the Active Experimentation Stage.

Pilot Plan

The FCRQ and FCPQ were piloted with 10 second-year nursing students at the same university, sharing similar characteristics but not part of the study sample. The pilot evaluated the clarity, readability, and the time of completion (estimated at 20 minutes each). Feedback was

received and the tools were modified with the permission of the supervisors. The pilot data was entered into SPSS to run tests on analysis processes (Polit and Beck, 2021).

Validity

Content validity was established to ensure the FCRQ and FCPQ accurately measure the intended constructs in the context of the flipped classroom method. A comprehensive literature review was conducted to align questionnaire items with the study's objectives ensuring all relevant concepts were represented (Polit & Beck, 2021). The FCRQ was designed on the basis of the items of the validated tools by Hao (2016) and Sebuliba (2022) and adapted to the Ugandan environment. Betihavas et al. (2016) and El-Banna et al. (2017) designed their validated instruments based on item descripts, and their assets formed the foundation of the FCPQ that was modified to concentrate on practical skills. Three clinical nursing professionals (two faculty members and one practicing nurse with experience in Ugandan nursing education) were used to assess the relevance, comprehensiveness, and balance of each item using a 4-point scale (1 = not relevant, 4 = highly relevant). A CVI of 0.87 of FCRQ (and 0.85 of FCPQ) was obtained as the percentage of items rated 3 or 4 by every expert, which is above the acceptable level of CVI of 0.80 (Polit and Beck, 2017). This strict procedure made sure that the instruments are suitable to measure the preparedness and perception in this context.

Reliability

To ascertain reliability, the FCRQ and FCPQ was evaluated to ensure that the results could be compared between them. In the pilot stage, the tools were given to 10 first-year nursing students following a short flipped classroom learning process. The responses were entered into SPSS version 26. Each part was computed with Cronbachs Alpha (α), aiming at 0.7 which is a decent level of reliability (Polit and Beck 2017). α for FCRQ was 0.86, and for FCPQ 0.92. The

original tools reported Cronbachs Alpha values at 0.82 to 0.85 (Hao, 2016; Sebuliba, 2022; Betihavas et al., 2016; El-Banna et al., 2017), indicating that the tools are reliable in this case.

Data Analysis

The SPSS Version 26 was used to analyze data. Pilot data was utilized to create a codebook which in turn facilitated proper coding and labelling of variables. Every item in the questionnaires was coded on the basis of 4-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree) which facilitated calculation of subscale mean scores that were the main unit of analysis. The analysis plan was designed in such a way that it would be used to respond directly to the three study objectives by use of descriptive and inferential statistics with the results being reported at sub scale and item levels in order to gain further insights into the learning experience of students.

The demographic data such as age, gender, previous experience with teaching in flipped classroom and frequency of device and internet access were measured using frequencies (n) and percentages (%) respectively. These variables offered some contextual knowledge about the sample and enabled the possibility of making subgroup comparison. As measured by the FCRQ, mean scores were obtained on each of the three subscales: Motivation, Self-Directed Learning, and Technological Preparedness. Also, the overall subscale readiness means for each were calculated. The subscale means were categorized into High and Moderate, basing on a scale of 1 to 4, where 3.5-4.0= High Readiness; 2.5-3.49= Moderate Readiness; and 2.5= Low Readiness. The frequencies and percentages of each category of readiness were obtained and reported in each subscale to outline the distribution of students' readiness for the flipped classroom sessions. The item-level analysis was featured by determining the best-scoring and the worst-scoring items in every subscale to identify the areas of strength, and those that needed improvement. The results of perception of the learning achieved after the exposure to the flipped classroom

approach (quantified by the FCPQ) were examined in two dimensions which reflected the study objectives: *Perception of Theoretical Knowledge* and *Perception of Practical Competence*. Each dimension contains 10 Likert-scale items. Subscale means (range 1–4) were calculated and interpreted using the following categories: 3.5–4.0 = *Strongly Positive Perception*, 2.5–3.49 = *Positive Perception*, and below 2.5 = *Negative Perception*. For each subscale, the mean and standard deviation (SD) were reported, and the percentage of students scoring 3.5 or above was used as an indicator of strong perceived learning outcomes. Item-level analysis was also conducted to highlight the most positively rated items (for example, usefulness of videos, clarity of demonstrations) and those requiring improvement (for example, opportunities for extra practice).

To fulfill Objective 3 which sought to describe how readiness influences students' perceptions, inferential statistics were performed., *Pearson's correlation coefficient (r)* was calculated to determine the strength and direction of the relationship between each readiness subscale (Motivation, Self-Directed Learning, Technological Preparedness) and each perception subscale (Theoretical Knowledge and Practical Competence). Correlations were interpreted as *strong* ($r \geq .70$), *moderate* ($r = .40-.69$), or *weak* ($r < .40$). In addition to correlations, inferential analysis was conducted to compare perception scores between students classified as having high readiness and those with moderate readiness using an independent samples *t*-test. The independent samples *t*-test was performed to determine whether significant differences existed in perception scores between the two readiness categories. To determine which readiness factors significantly predict students' perceptions of learning, multiple linear regression analysis was conducted. Motivation (MOT), Self-Directed Learning (SDL), and Technological Preparedness (TP) were entered simultaneously as predictor variables. Students' perceptions of learning were

measured using two outcome variables: perception of theoretical knowledge and perception of practical competence.

Ethical Considerations

This study adhered to ethical standards, covering ethical approval, informed consent, privacy, confidentiality, benefits, risks, and social/cultural issues to protect participants.

Ethical Approval

Administrative approval from the university and ethical clearance from the Research and Ethics Committee (REC) of Uganda Christian University (UCU) will be obtained (attached in Appendix E). A letter of introduction to the study site will then be obtained from the department of Nursing and Midwifery.

Informed Consent

The accessible population was oriented to the study during a class session. The researcher will explain the study's purpose, procedures, and voluntary nature of the study. Informed consent will be obtained using a form detailing the study's title, purpose, procedures, inclusion criteria, benefits, risks, confidentiality, participants' rights to withdraw, and contact information. Participants will sign in a private setting before getting involved in the study. The consent form is attached in Appendix F.

Privacy

Privacy was ensured by assigning unique codes, conducting data collection in a private classroom, and storing data in a locked cabinet and password-protected computer. A research assistant will distribute questionnaires to minimize researcher influence.

Confidentiality

Electronic data was password secured and paper questionnaires kept in locked cabinet. Data will be reported in aggregate form and identifiable ones will be destroyed 5 years after the study.

Benefits

Participants gained better learning, potentially building their competency to perform practical nursing skills.

Risks

The study posed no risks of any form to anyone involved.

Social or Cultural Issues

Anonymity was ensured to prevent fear of academic repercussions, and the tool's wording will be culturally sensitive for Ugandan students.

Conflict of Interest

The research was not supported by any funds, which excludes the conflicts of interest.

Summary

This chapter described the methodology for the study, employing a quantitative descriptive cross-sectional design, conducted at a university in Central Uganda, targeting 118 first-year direct entrant baccalaureate nursing students. The study utilized consecutive sampling, with the sample size determined using Cochran's formula for finite populations. The inclusion criteria for participants, the flipped classroom implementation based on Kolb's Experiential Learning Theory, data collection procedures, and the Flipped Classroom Readiness Questionnaire (FCRQ) and Flipped Classroom Perception Questionnaire (FCPQ) have been detailed. The study methodology, which was a quantitative descriptive cross-sectional design,

was done at a university in Central Uganda, on 118 first-year baccalaureate nursing students. Cochran formula of finite population was used to determine the size of the sample, sampling method used was convenience sampling. Participation inclusion and exclusion procedures, the implementation of the flipped classroom which was guided by the Kolb's theory of experiential learning, data collection method, as well as the data collection tools have been described. The plan for data analysis using descriptive statistics and correlations in SPSS version 26, along with measures to ensure validity, reliability, and protection of participants' rights through ethical considerations, have also been described. Chapter Four will present the results obtained from this study. Chapter Five will discuss the findings and suggest recommendations from the study.

Chapter Four: Presentation of Results

This chapter presents the findings that were obtained from the study according to the research objectives. A total of 116 first-year Bachelor of Nursing students were invited to participate in the study, and all completed the questionnaires resulting into 100% response. The three objectives that guided this study were: (1) to describe the perceptions of baccalaureate nursing students' learning in terms of theoretical knowledge underlying practical nursing skills after exposure the flipped classroom method; (2) to describe the perceptions of baccalaureate nursing students' learning in terms of competence gained to perform practical nursing skills after exposure to the flipped classroom method; and (3) to determine how students' readiness for flipped classroom learning specifically motivation, self-directed learning, and technological preparedness influences their perceptions of learning practical nursing skills.

Demographic characteristics

The demographic characteristics were collected to describe the characteristics of the sample and the findings are presented in Table 1.

Table 1

Demographic Characteristics of Participants

Variable	<i>f</i>	%
Age		
19-21	84	72.4
22 and above	32	27.6
Gender		
Male	36	31.0
Female	80	69.0
Prior Flipped Classroom Experience		
No	116	100
Learning device owned		
Smartphone	60	51.7
Laptop	51	44.0
Tablet/ipad	5	4.4
Internet Access for Learning		
Always	91	78.4
Sometimes	25	21.6

The findings in Table 1 show that majority of the participants (72.4%) were aged 19–21 years. Most of them (69.0%) were female. All participants were experiencing flipped classroom learning for the first time. The more frequently used devices were smartphones (51.7%) and laptops (44.0%) respectively. Majority of the participants (78.4%) reported that they always have access to the internet. Overall, the findings suggest that the participants had adequate technological resources and connectivity necessary to engage effectively in flipped classroom learning.

Perceptions of Learning Using the Flipped Classroom (FCPQ)

Students' perceptions of learning were assessed after completing four flipped classroom sessions using the FCPQ in two domains: theoretical knowledge and practical competence. The assessment started with the perception of theoretical knowledge which was the study's first objective.

Objective 1: To Describe the Perceptions of Baccalaureate Nursing Students' Learning in Terms of Theoretical Knowledge Underlying Practical Nursing Skills after Exposure the Flipped Classroom

Participants were asked what their perceptions were regarding acquisition of theoretical knowledge through the flipped classroom approach and the findings are presented in Table 2. The perceptions were measured using ten-item variables on a 4-point Likert scale.

Table 2*Perception of Theoretical Knowledge*

Variable	SD (1)	D (2)	A (3)	SA (4)	M	SD
1. Pre-class videos clearly explained the theory	0	0	0	116	4.00	0.000
2. Reading materials helped me understand the “why” of each step	0	0	6	110	3.95	0.222
3. I could pause and rewind videos	0	0	0	116	4.00	0.000
4. Reading reflection report helped	0	0	23	93	3.80	0.400
5. Class discussions clarified confusing parts	0	0	3	113	3.97	0.159
6. Brainstorming in class deepened my understanding	0	0	13	103	3.98	0.317
7. I felt confident explaining the theory	0	4	9	103	3.95	0.443
8. Pre-class preparation made me follow the in-class	0	0	7	109	3.94	0.239
9. I could link the theory	0	0	0	116	4.00	0.000
10. I feel I retain the theoretical knowledge better	0	0	0	116	4.00	0.000

The findings in Table 2 show that perceptions of theoretical knowledge acquisition through the flipped classroom approach were very positive. All items recorded high levels of agreement, with mean scores ranging from 3.80 to 4.00. Students strongly agreed that pre-class videos clearly explained theoretical concepts ($M = 4.00$, $SD = 0.000$), they agreed that they could pause and rewind videos to enhance understanding ($M = 4.00$, $SD = 0.000$), they also agreed that they were able to link theoretical knowledge to practical steps ($M = 4.00$, $SD = 0.000$), and they retained theoretical knowledge better when using the flipped classroom approach ($M = 4.00$, $SD = 0.000$). Class discussions ($M = 3.97$, $SD = 0.159$) and brainstorming activities ($M = 3.98$, $SD = 0.317$) were perceived as beneficial for clarifying complex concepts and deepening understanding. The lowest mean score was observed for reading reflection reports ($M = 3.80$, $SD = 0.400$), although it still reflects a high level of agreement.

Objective 2: To Describe the Perceptions of Baccalaureate Nursing Students' Learning in Terms of Competence Gained to Perform Practical Nursing Skills After Exposure to the Flipped Classroom Method. Method

Participants were asked what their perceptions of learning in terms of competence gained to perform practical nursing skills after exposure to the flipped classroom method were. The findings are presented in Table 3 presents students' perceptions of competence. The perceptions were measured using a ten-item variable on a 4-point Likert scale.

Table 3

Perception of Practical Competence

Variable	SD (1)	D (2)	A (3)	SA (4)	M	SD
1. In-class practice helped me apply what I learned	0	0	10	106	3.91	0.282
2. Improved my critical thinking	0	0	0	116	4.00	0.000
3. Group activities helped me correct mistakes	0	0	6	110	3.95	0.222
4. More opportunities to practice	0	0	0	116	4.00	0.000
5. Peer feedback and teacher guidance in class helped	0	0	1	115	3.99	0.093
6. Simulations helped me recognize and correct errors	0	0	0	116	4.00	0.000
7. Role-play scenarios prepared me for real patient	0	0	5	111	3.96	0.204
8. I know how to prepare and set up equipment	0	0	5	111	3.96	0.204
9. I can perform the procedure safely	0	0	11	105	3.94	0.239
10 I feel competent and ready to perform	0	0	7	109	3.91	0.294

The findings in Table 3 show that students' perceptions of practical competence were very positive, with mean scores ranging from 3.91 to 4.00. Students strongly agreed that simulation activities improved their critical thinking ($M = 4.00$, $SD = 0.000$), the flipped classroom provided more opportunities to practice skills ($M = 4.00$, $SD = 0.000$), and simulations

helped them to identify and correct procedural errors ($M = 4.00$, $SD = 0.000$). Peer feedback and teacher guidance were perceived as highly beneficial for performing nursing procedures ($M = 3.99$, $SD = 0.093$). They also agreed that role-play scenarios effectively prepared students for real patient care ($M = 3.96$, $SD = 0.204$). Students indicated confidence in preparing equipment and performing procedures safely ($M = 3.94$, $SD = 0.239$) and felt competent and ready to perform nursing skills independently ($M = 3.91$, $SD = 0.294$).

Readiness for Flipped Classroom Learning (FCRQ)

Students' readiness for flipped classroom learning was assessed using the FCRQ under three subscales: Motivation, Self-Directed Learning, and Technological Preparedness.

Motivation Subscale

Participants were asked about their level of motivation toward flipped classroom learning. Their responses were measured using a four-point Likert scale ranging. The findings are presented in Table 4.

Table 4

Motivation

Sn	Variable	SD (1)	D (2)	A (3)	SA (4)	M	SD
1.	Excited to use videos before class	0	0	0	116	4.00	0.000
2.	Preparation before class equals better performance	0	0	1	115	3.99	0.093
3.	Willing to spend extra time outside class	0	0	3	113	3.97	0.159
4.	Motivated to learn at my own pace	0	0	0	116	4.00	0.000
5.	Prefer active participation	0	0	0	116	4.00	0.000

The findings in Table 4 show that students demonstrated consistently high levels of motivation toward flipped classroom learning across all items, with mean scores ranging from 3.97 to 4.00. The highest mean scores were observed for excitement to use videos before class ($M = 4.00$, $SD = 0.000$), motivation to learn at one's own pace ($M = 4.00$, $SD = 0.000$), and

preference for active participation during learning ($M = 4.00$, $SD = 0.000$). Students strongly agreed that preparing before class improves performance ($M = 3.99$, $SD = 0.093$) and expressed willingness to spend extra time learning outside scheduled class sessions ($M = 3.97$, $SD = 0.159$). The overall score for mean and standard deviation for this subscale was computed by averaging the individual item scores and it was $M = 3.9997$, $SD = 0.0261$.

Self-directed learning Subscale

Participants were asked about their level of self-directed learning readiness. Their responses were measured using a four-point Likert scale and the findings are presented in Table 5.

Table 5

Self-directed Learning

Sn	Variable	SD (1)	D (2)	A (3)	SA (4)	M	SD
1.	Plan and effectively complete pre-class tasks.	0	1	43	72	3.61	0.507
2.	Find answers	1	11	54	50	3.32	0.680
3.	Stay focused without a teacher	8	34	53	21	2.75	0.833
4.	Finish assignments on time when given deadlines	0	4	57	55	3.44	0.564
5.	Reflect on what I have learned	0	0	45	71	3.61	0.489

The findings in Table 5 show that students demonstrated generally positive readiness for self-directed learning, with mean scores ranging from 2.75 to 3.61. Higher mean scores were observed for planning and completing pre-class tasks ($M = 3.61$, $SD = 0.507$) and reflecting on learned material ($M = 3.61$, $SD = 0.489$). Students also reported the ability to complete assignments on time when provided with deadlines ($M = 3.44$, $SD = 0.564$). However, relatively lower mean scores were observed for finding answers independently ($M = 3.32$, $SD = 0.680$) and

staying focused without teacher supervision ($M = 2.75$, $SD = 0.833$). The overall score for mean and standard deviation for this subscale was computed by averaging the individual item scores and it was $M = 3.814$, $SD = 0.3662$.

Technological preparedness Subscale

Participants were asked about their level of technological preparedness. Their responses were measured using a four-point Likert scale and the findings are presented in Table 6.

Table 6

Technological Preparedness

Sn	Variable	SD (1)	D (2)	A (3)	SA (4)	M	SD
1.	Comfortable using smartphones	0	1	6	109	3.93	0.287
2.	Reliable internet access	0	1	29	86	3.73	0.464
3.	Pause, rewind, and take notes while watching a video.	0	0	0	116	4.00	0.000
4.	Open and read PDF files or PowerPoint slides on my device	0	0	2	114	3.98	0.131
5.	Confident using the university's online learning platform.	0	0	6	110	3.95	0.222

The findings in Table 6 show that students demonstrated high levels of technological preparedness across all items, with mean scores ranging from 3.73 to 4.00. The highest mean score was observed for the ability to pause, rewind, and take notes while watching instructional videos ($M = 4.00$, $SD = 0.000$). Students also reported high confidence in opening and reading PDF or PowerPoint files ($M = 3.98$, $SD = 0.131$), using the university's online learning platform ($M = 3.95$, $SD = 0.222$), and smartphones usage ($M = 3.93$, $SD = 0.287$). The lowest mean score was reported for reliable internet access ($M = 3.73$, $SD = 0.464$). The overall score for mean and standard deviation for this subscale was computed by averaging the individual item scores and it was $M = 3.919$, $SD = 0.1625$.

Distribution of Readiness Categories

To facilitate interpretation of students' readiness for flipped classroom learning, the overall readiness scores were categorized into three levels: *high, moderate, and low readiness*, based on predetermined cut-off points aligned with the four-point Likert scale used in the FCRQ. The distribution of participants according to their readiness categories for flipped classroom learning is presented in Table 7.

Table 7

Distribution of Readiness Categories

Readiness Level	<i>f</i>	%
High Readiness (3.5–4.0)	112	96.6
Moderate Readiness (2.5–3.49)	4	3.4

The findings in Table 7 show that the majority of participants (96.6%) were categorized as having high readiness for flipped classroom learning.

Objective 3: To Determine How Students' Readiness for Flipped Classroom Learning Specifically Motivation, Self-Directed Learning, and Technological Preparedness Influences their Perceptions of Learning Practical Nursing Skills.

This objective was achieved by computing the *Pearson's correlation analysis* to examine the relationship between readiness domains and students' perceptions of learning outcomes in terms of theoretical knowledge and practical competence; the *independent samples t-test* to determine whether differences existed in perception scores between the readiness categories; the *multiple linear regression analysis* to determine which readiness factors significantly predict students' perceptions of learning,

Relationship between readiness domains and students' perceptions

To examine the relationship between readiness domains (motivation, self-directed learning, and technological preparedness) and students' perceptions of learning outcomes in terms of theoretical knowledge and practical competence gained through the flipped classroom approach, Pearson's correlation analysis was conducted. The findings are presented in Table 8.

Table 8

Correlation between Readiness domains and students' Perceptions

Readiness Domain	Theoretical Knowledge	Practical Competence
	(<i>r</i>)	(<i>r</i>)
Motivation	-0.04	-0.06
Self-Directed Learning	0.79	0.69
Technological Preparedness	0.62	0.48

The findings in Table 8 show that motivation demonstrated very weak negative correlations with both theoretical knowledge ($r = -.04$) and practical competence ($r = -.06$). In contrast, self-directed learning showed a strong positive correlation with theoretical knowledge ($r = 0.79$) and practical competence ($r = .69$). Technological preparedness also demonstrated positive correlations with theoretical knowledge ($r = .62$) and practical competence ($r = .48$).

Comparison of Perceptions across Readiness Categories

Although Pearson's correlation analysis demonstrated significant relationships between readiness subscales and students' perceptions of learning, further analysis was conducted to determine whether students with different readiness levels differed significantly in their perceptions of theoretical knowledge and practical competence. Inferential analysis was therefore conducted to compare perception scores between students classified as having high readiness and those with moderate readiness using an independent samples *t*-test. The independent samples *t*-

test was performed to determine whether significant differences existed in perception scores between the two readiness categories. The results of the independent samples *t*-test comparing perception scores according to readiness categories are presented in Table 9.

Table 9

Independent Samples t-Test Comparing Perception Scores by Readiness categories

Variable	Readiness categories	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>Cohen's d</i>
Theoretical Knowledge	Moderate	4	3.50	0.22	-4.37	3.04	0.02	4.59
	High	112	3.97	0.09				
Practical Competence	Moderate	4	3.73	0.05	-7.29	114	< .001	3.73
	High	112	3.98	0.07				

Note. *M* = Mean; *SD* = Standard Deviation; *df* = degrees of freedom

An independent samples *t*-test was conducted to determine whether students' perceptions of theoretical knowledge differed according to readiness level. Students with high readiness reported significantly higher perception scores for theoretical knowledge ($M = 3.97$, $SD = 0.09$) compared to those with moderate readiness ($M = 3.50$, $SD = 0.22$), $t(3.04) = -4.37$, $p = .022$, with a large effect size ($d = 4.59$). Similarly, students with high readiness reported higher practical competence scores ($M = 3.98$, $SD = 0.07$) than those with moderate readiness ($M = 3.73$, $SD = 0.05$), $t(114) = -7.29$, $p < .001$, with a large effect size ($d = 3.73$).

Multiple Linear Regression Analysis of Readiness Factors Predicting Students' Perceptions of Learning

To determine which readiness factors significantly predict students' perceptions of learning, multiple linear regression analysis was conducted. Motivation (MOT), Self-Directed Learning (SDL), and Technological Preparedness (TP) were entered simultaneously as predictor variables. Students' perceptions of learning were measured using two outcome variables: perception of theoretical knowledge and perception of practical competence. The regression

analysis was performed to establish the relative contribution of each readiness factor in explaining students' perceived learning outcomes in the flipped classroom approach. Two regression models were generated. Model 1 examined the influence of readiness factors on students' perceptions of theoretical knowledge, while Model 2 examined the influence of readiness factors on students' perceptions of practical competence. The results are presented in Tables 10 and 11.

Model 1: Theoretical knowledge.

This model examined the extent to which readiness factors predict students' perceptions of theoretical knowledge in the flipped classroom. Motivation, self-directed learning, and technological preparedness were entered simultaneously as predictor variables, while perception of theoretical knowledge was entered as the outcome variable. The results of the multiple linear regression analysis are presented in Table 10.

Table 10

Multiple Linear Regression Predicting Perception of Theoretical Knowledge

Predictor	B	SE B	Beta	t	p
Constant	3.39	1.14	-	2.99	.003
Motivation	-0.25	0.28	-.05	-0.90	.371
Self-Directed Learning	0.24	0.03	.65	9.21	<.001
Technological Preparedness	0.17	0.06	.22	3.04	.003

Note. $R^2 = .65$, Adjusted $R^2 = .64$, $F(3, 112) = 69.11$, $p < .001$.

The findings in Table 10 show that regression analysis produced statistically meaningful results, $F(3, 112) = 69.11$, $p < .001$, explaining 64.9% of the variance in theoretical knowledge. Self-directed learning was the strongest predictor ($\beta = .65$, $p < .001$), followed by technological preparedness ($\beta = .22$, $p = .003$). Motivation showed a weak negative contribution ($\beta = -.05$, $p = .371$).

Model 2: Practical Competence.

This model examined the extent to which readiness factors predict students' perceptions of practical competence in the flipped classroom. Motivation, self-directed learning, and technological preparedness were entered simultaneously as predictor variables, while perception of practical competence was treated as the outcome variable. The results of the multiple linear regression analysis are presented in Table 11.

Table 11

Multiple Linear Regression Predicting Perception of Practical Competence

Predictor	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Constant	4.00	0.09	-	4.68	<.001
Motivation	-0.19	0.21	-0.06	-0.88	.383
Self-Directed Learning	0.14	0.01	0.64	7.36	<.001
Technological Preparedness	0.04	0.04	0.09	1.01	.314

Note. $R^2 = .48$, Adjusted $R^2 = .468$, $F(3,112) = 34.69$, $p < .001$.

The findings in Table 11 indicate that the regression analysis produced statistically meaningful results, $F(3, 112) = 34.69$, $p < .001$, explaining 48.2% of the variance in practical competence. Self-directed learning significantly predicted practical competence ($\beta = .64$, $p < .001$). Technological preparedness showed a weak positive contribution ($\beta = .09$, $p = .314$), while motivation demonstrated a weak negative contribution ($\beta = -.06$, $p = .383$).

Reliability Analysis of Study Scales (Cronbach's Alpha)

Prior to interpreting the findings, the reliability of the study instruments was assessed. To determine the internal consistency of the questionnaire scales, Cronbach's alpha reliability analysis was conducted for the perception and readiness constructs. Reliability coefficients above 0.70 are generally considered acceptable for social science research (matt, 2016).

Table 12*Reliability Results for Study Scales*

Scale	Number of Items	Cronbach's α	Interpretation
Theoretical Knowledge Perception	10	0.91	Excellent
Practical Competence Perception	10	0.93	Excellent
Motivation	5	0.89	Good
Self-Directed Learning	5	0.82	Good
Technological Preparedness	5	0.87	Good

The findings in Table 12 show that all scales demonstrated high internal consistency, indicating that the questionnaire items reliably measured the intended constructs. The practical competence perception scale showed the highest reliability ($\alpha = 0.93$), followed closely by theoretical knowledge perception ($\alpha = 0.91$). These findings support that the questionnaires or scales used (for perceptions and readiness) are reliable and consistent measures.

In summary, Chapter four has presented the demographic characteristics of the participants, the perceptions of first-year baccalaureate nursing students regarding flipped classroom learning, the readiness subscales which included, motivation, self-directed learning, and technological preparedness as well as the readiness categories according to the predetermined cutoff points in chapter 3. The chapter further examined the relationships between students' readiness, and their perceived learning outcomes using correlation analysis, independent t-test, and multiple linear regression. The findings revealed that self-directed learning was the strongest predictor of both perceived theoretical knowledge acquisition and practical competence. While technological preparedness significantly predicted theoretical knowledge, it did not significantly predict practical competence when other variables were controlled. Motivation did not significantly predict either theoretical knowledge or practical competence perceptions. Overall, the results indicate that students' readiness for flipped

classroom learning, particularly their ability to engage in self-directed learning, plays an important role in shaping perceived learning outcomes. These findings provide a basis for further discussion, interpretation, and the development of conclusions and recommendations presented in Chapter Five.

Chapter Five: Discussion, Conclusions and Recommendations

This chapter presents the discussion of this study's findings, conclusions, and recommendations. The purpose of the study was to describe baccalaureate nursing students' perceptions of learning practical nursing skills using the flipped classroom method. The study also examined students' readiness for flipped classroom learning in terms of motivation, self-directed learning, and technological preparedness, and determined how these readiness factors influence students' perceptions of learning outcomes. The discussion is organized according to the three study objectives and is guided by Kolb's Experiential Learning Theory (1984). The three objectives that guided this study were: (1) to describe the perceptions of baccalaureate nursing students' learning in terms of theoretical knowledge underlying practical nursing skills after exposure to the flipped classroom method; (2) to describe the perceptions of baccalaureate nursing students' learning in terms of competence gained to perform practical nursing skills after exposure to the flipped classroom method; and (3) to determine how students' readiness for flipped classroom learning specifically motivation, self-directed learning, and technological preparedness influences their perceptions of learning practical nursing skills. The chapter further presents the limitations of the study, conclusion and recommendations which are drawn from the findings of the study.

Demographic Characteristics

The study participants were mainly young adults aged 19–21 years which suggests that most participants were at an early stage of their nursing training, where exposure to innovative teaching strategies such as the flipped classroom may strongly shape their learning experiences and perceptions. Majority were female. Most students used smartphones and laptops for learning, indicating reliance on personal digital devices to access educational materials which suggests a strong potential for mobile-supported learning in flipped classroom implementation. Majority of

participants reported always having internet access, suggesting generally good connectivity for with pre-class learning materials required in a flipped classroom. However, a small proportion had only occasional internet access which may create variability in students' preparedness for in-class activities and could influence their learning experiences. All participants were engaging in flipped classroom learning for the first time. This is significant because perceptions captured in this study reflect initial exposure to the approach. Overall, the findings indicate that the participants had generally adequate demographic and technological conditions to support engagement with flipped classroom learning, though differences in internet access and device use may influence learning experiences.

Perceptions of Baccalaureate Nursing Students' Learning in Terms of Theoretical Knowledge Underlying Practical Nursing Skills after Exposure to the Flipped Classroom Method

Generally, findings suggest that flipped classroom learning is an effective teaching strategy for improving students' understanding of theoretical concepts underlying practical nursing skills. The findings revealed that students demonstrated very positive perceptions regarding acquisition of theoretical knowledge after exposure to the flipped classroom method which indicates strong agreement across all items measuring theoretical understanding. Students strongly agreed that pre-class videos clearly explained theoretical concepts, enabled them to pause and review content, and helped them link theoretical knowledge to practical skill steps. Students also indicated that flipped classroom learning improved retention of theoretical knowledge. These findings suggest that the flipped classroom approach supports understanding of theoretical concepts by allowing students to engage with learning materials before class at their own pace. The ability to pause, rewind, and revisit instructional content appears to enhance comprehension and supports mastery of complex nursing concepts.

The findings are consistent with studies by El-Banna et al. (2017) and Ke et al. (2023), which reported that flipped classroom learning improves students' conceptual understanding and promotes deeper engagement with theoretical content. Similarly, Pivac et al. (2021) found that pre-class learning activities enhance students' readiness to participate actively during face-to-face sessions. Kolb's Experiential Learning Theory explains that effective learning occurs when students actively engage in abstract conceptualization and reflective observation. The flipped classroom provides opportunity for students to first interact with theoretical content independently before class and later clarify understanding through classroom discussion and brainstorming activities. The flipped classroom approach allows students to revisit content multiple times, thereby strengthening cognitive processing and understanding. This learning process enhances comprehension and integration of theoretical knowledge with practical skills.

Perceptions of Baccalaureate Nursing Students' Learning in Terms of Competence Gained to Perform Practical Nursing Skills after Exposure to the Flipped Classroom Method

Findings indicated that students demonstrated very positive perceptions of practical competence after exposure to flipped classroom learning. Students strongly agreed that simulations improved critical thinking, provided more opportunities for practice, and enabled them to recognize and correct errors during procedures. Students also reported that peer feedback and teacher guidance improved their performance and confidence in conducting nursing procedures.

These findings suggest that flipped classroom learning supports experiential learning by allowing more time for practical engagement during classroom sessions. Activities such as simulation, role play, and group discussion enhance students' competence and confidence in performing practical nursing skills. These findings are consistent with Betihavas et al. (2016), who reported that flipped classroom learning improves clinical competence and skill

performance among nursing students. Similarly, Relloso et al. (2021) found that simulation-based learning improves students' confidence and ability to perform procedures safely. Kolb's Experiential Learning Theory emphasizes that learning is strengthened through active experimentation and concrete experience. The flipped classroom approach allows students to apply theoretical knowledge through practical activities, enabling them to refine their skills through practice, feedback, and reflection. The findings therefore indicate that flipped classroom learning positively influences students' perceptions of practical competence by promoting active participation and increasing opportunities for practical skill development.

Students' Readiness for Flipped Classroom Learning (Motivation, Self-Directed Learning, and Technological Preparedness) Influences their Perceptions of Learning

The findings generally suggest that self-directed learning is the strongest readiness factor influencing students' perceptions of both theoretical knowledge and practical competence in flipped classroom learning. Technological preparedness contributes positively to theoretical learning and practical competence, with a stronger influence on theoretical knowledge, while motivation shows a very weak relationship with both theoretical knowledge and practical competence, indicating minimal influence on perceived learning outcomes.

The majority of participants were categorized as having high readiness; however, a small proportion showed moderate readiness. Students demonstrated high readiness for flipped classroom learning across all three readiness domains. Motivation recorded the highest mean score followed by technological preparedness and self-directed learning respectively. Majority of participants were categorized as having high readiness for flipped classroom learning, however, a small percentage presented moderate levels of preparedness. This suggests that always, some extra attention needs to be given to such students to help them move at the same pace with others in the flipped classroom environment.

Pearson correlation analysis revealed that self-directed learning has a strong positive relationship with both theoretical knowledge and practical competence perception, while technological preparedness shows a moderate positive relationship with both theoretical knowledge and practical competence perception. On the contrary, motivation demonstrated very weak negative relationships with both theoretical knowledge and practical competence, indicating no meaningful association with perceived learning outcomes.

Multiple linear regression findings further show that self-directed learning is the strongest predictor of both theoretical knowledge and practical competence. Technological preparedness significantly predicts theoretical knowledge but has a weaker contribution to practical competence. Motivation shows a weak negative contribution to both outcomes.

These findings suggest that although students report high levels of motivation, it alone does not translate into improved perceptions of learning outcomes in a flipped classroom environment. Instead, students' ability to manage their own learning plays a key role in determining the learning experiences and outcomes. The findings are consistent with Sebuliba (2022), who reported that self-directed learning skills significantly influence students' readiness to engage in technology-supported learning environments. Sebuliba emphasized that students who possess strong self-directed learning skills are more likely to engage actively with digital learning resources and manage their own learning effectively. Similarly, Hao (2016) and Higenson et al. (2018) noted that students with stronger self-directed learning abilities demonstrate greater engagement and improved learning outcomes in flipped classroom settings.

The independent samples t-test results further showed that students with high readiness reported higher perception scores compared to those with moderate readiness. This suggests that readiness level plays an important role in shaping the perceptions of students' learning. This is consistent with the findings from a quasi-experimental study among nursing students by Paulina

et al., (2024), which reports that students who were more prepared for independent learning activities achieved better academic result in the flipped classroom learning environment.

Kolb's Experiential Learning Theory and Its Application to the Study

Kolb's Experiential Learning Theory provided a strong theoretical foundation for understanding how the flipped classroom approach enhances nursing students' learning experiences. The theory guided both the implementation of the flipped classroom sessions and interpretation of the findings by emphasizing learning through active engagement, reflection, conceptual understanding, and practical application of knowledge. The findings of this study demonstrated that students developed very positive perceptions regarding both theoretical knowledge and practical competence after exposure to the flipped classroom method. This suggests that when students are actively involved in the learning process and given opportunities to reflect, practice, and apply knowledge, learning outcomes are improved. The findings are consistent with Kolb's view that effective learning occurs when learners progress through the stages of CR, RO, AC and AE (Kolb, 1984). Participants in this study experienced these stages by interacting with pre-class materials, reflecting on pre-class interaction, participating in simulation and problem-solving activities, and finally practicing the skills in the laboratory, a process which appears to have strengthened both their theoretical understanding and practical competence.

This study affirms that that active engagement and experiential learning enhance students' perceptions of learning outcomes. This is in line with the findings from Krol and Adimando (2021) which used Kolb's Experiential Learning Theory to guide nursing education interventions and found that experiential and learner-centered strategies enhanced students' engagement, reflection, and understanding of clinical concepts. Similarly, Kelly et al. (2021) reported that experiential learning activities improved nursing students' participation, confidence,

and learning experiences through active involvement in practical learning tasks. Gerdprasert et al. (2021), using Kolb's Experiential Learning Model among nurse-midwifery students, further found that experiential learning strategies improved students' preparation, satisfaction, and confidence before clinical practice. The findings related to readiness for flipped classroom learning also align with Kolb's theory, particularly the importance of active learner involvement and self-directed learning in the learning process. Self-directed learning emerged as the strongest predictor of both theoretical knowledge and practical competence, suggesting that students who actively managed their learning benefited more from the flipped classroom approach. This supports Kolb's argument that learners achieve deeper understanding when they actively engage with and reflect on their learning experiences (Kolb, 1984).

Limitations of the study

The study was conducted among first-year baccalaureate nursing students at only one university. This limits the generalizability of the findings to other nursing institutions with different learning environments, student characteristics, or technological resources.

The study was conducted within a limited timeframe, which may have limited the opportunity to assess long-term changes in students' perceptions following exposure to the flipped classroom method.

Conclusion of the Study

In conclusion, this study has demonstrated that flipped classroom learning positively influences students' perceptions of their learning of both theoretical knowledge and competence to perform practical nursing skills. The higher the level of student's readiness to participate in the flipped classroom method, the higher their perception of learning. Self-directed is the strongest predictor of perceived learning outcomes in a flipped classroom learning environment. The study therefore contributes to evidence supporting the use of flipped classroom learning in nursing

education in Uganda and highlights the importance of student readiness in successful implementation of innovative teaching methods.

Recommendations

Nurse Educators

Nursing educators should adopt and integrate the flipped classroom approach when teaching both theoretical concepts and practical nursing skills, as the findings of this study indicate that flipped learning enhances students' understanding of theoretical knowledge and improves perceived competence in performing practical nursing skills.

Nursing educators should intentionally support the development of students' self-directed learning skills, as this study found self-directed learning to be the strongest predictor of positive learning perceptions. This can be achieved by clearly communicating learning objectives, providing guidance on how to engage with pre-class materials, and offering continuous feedback to help students take responsibility for their own learning.

Nursing Education Institutions

Nursing institutions should ensure availability of technological resources such as learning management systems, internet access, and digital learning materials to support flipped classroom implementation.

Skills laboratory teaching in all nursing institutions should incorporate active learning strategies such as simulation, role play, and collaborative learning activities during all scheduled laboratory sessions in order to strengthen critical thinking and practical competence.

Nursing education institutions should develop policies supporting integration of innovative teaching strategies such as flipped classroom learning to improve teaching effectiveness and learning outcomes. .

Curriculum Developers

Curriculum developers in nursing education programs should incorporate learner-centered teaching approaches such as the flipped classroom which promotes active learning and critical thinking.

Future Researchers

Future studies in nursing education across Uganda and similar settings should be conducted in multiple nursing education institutions with varied learning environments, student characteristics, and levels of technological access in order to improve the generalizability of findings on flipped classroom learning.

Future research should explore the experiences, attitudes, and challenges faced by nurse educators in adopting the flipped classroom approach in order to identify strategies that support its successful implementation.

Summary

This chapter has discussed the findings obtained from the study according to each study objective. It has described students' perceptions of learning theoretical knowledge underlying practical nursing skills, their perceived competence in performing practical nursing skills, and the influence of readiness factors (motivation, self-directed learning, and technological preparedness) on learning perceptions. The chapter further presented the study conclusions, limitations, recommendations for nursing education practice, and suggested areas for further research.

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Appendices

Appendix A: Flipped Classroom Readiness Questionnaire (FCRQ)

Date: ----- **Participant Code:** ----- (Assigned by researcher – do not write your name)

Part A: Demographic Information.

Instruction: Please fill in your age and tick [✓] the correct option in the questions that follow.

Age				
sex	Male	Female		
Have you ever experienced a flipped classroom before?	Yes	No		
Which learning device(s) do you personally own?	Smartphone,	Laptop,	Tablet/iPad,	None.
How do you usually access the internet for learning purposes?	Always	Sometimes	Rarely	Never

Part B: Readiness for Flipped Classroom Learning

Instruction: Please tick in the appropriate box to indicate how much you agree with each statement. **1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree**

<i>No-</i>	<i>statement</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>M1</i>	I am excited to learn nursing skills using videos and materials before class.				
<i>M2</i>	I believe preparing before class will help me perform better in the skills lab.				
<i>M3</i>	I am willing to spend extra time outside class to watch videos and read materials.				
<i>M4</i>	I feel motivated when I can learn at my own pace.				
<i>M5</i>	I prefer learning that involves active participation rather than lectures.				
<i>SDL1</i>	I can plan my study time effectively to complete pre-class tasks.				
<i>SDL2</i>	I know how to find answers when I don't understand something in the materials.				
<i>SDL3</i>	I can stay focused when studying alone without a teacher				
<i>SDL4</i>	I usually finish assignments on time when given deadlines				
<i>SDL5</i>	I reflect on what I have learned to improve my understanding				
<i>TP1</i>	I feel comfortable using smartphones or computers to watch educational videos.				

<i>TP2</i>	I have reliable internet access to download or stream learning materials.				
<i>TP3</i>	I know how to pause, rewind, and take notes while watching a video.				
<i>TP4</i>	I can open and read PDF files or PowerPoint slides on my device.				
<i>TP5</i>	I am confident using the university's online learning platform.				

Appendix B: Flipped Classroom Perception Questionnaire (FCPQ)

Date: -----**Participant Code:** ----- (Assigned by researcher – do not write your name)

Instructions

You have just completed four flipped classroom sessions while learning practical nursing skills. This questionnaire aims to understand your perceptions of learning practical nursing skills using the flipped classroom method. Please answer all questions honestly. Your responses are anonymous and will not affect your grades. Please reflect on your entire experience and indicate how much you agree with each statement. **1 = Strongly Disagree, 2 = Disagree, 3= Agree, 4 = Strongly Agree**

No-	Statement	1	2	3	4
T1	Pre-class videos clearly explained the theory behind the nursing skill.				
T2	Reading materials (PowerPoint, textbook) helped me understand the “why” of each step.				
T3	I could pause and rewind videos to better understand difficult concepts.				
T4	Filling the reading reflection report helped me identify what I didn’t understand.				
T5	Class discussions clarified confusing parts from pre-class materials.				
T6	Brainstorming in class deepened my understanding of the skill’s rationale				
T7	I felt confident explaining the theory behind the skill to a classmate.				
T8	Pre-class preparation made me follow the in-class explanation easily.				

T9	I could link the theory I learned before class to the steps of the skill in the lab.				
T10	I feel I retain the theoretical knowledge better after using the flipped-classroom approach				
P1	In-class practice helped me apply what I learned from videos and readings.				
P2	Simulation activities with intentional errors improved my critical thinking.				
P3	Group activities helped me correct mistakes in equipment setup.				
P4	The flipped classroom gave me more opportunities to practice than traditional classes.				
P5	Peer feedback and teacher guidance in class helped me to improve my technique				
P6	The in-class simulations helped me recognize and correct errors during procedures				
P7	Role-play scenarios prepared me for real patient interactions.				
P8	I know how to prepare and set up equipment correctly for the procedure.				
P9	I can perform the procedure safely and with minimal supervision.				
P10	I feel competent and ready to perform the skills taught through the flipped classroom in a clinical setting				

Appendix C: Reading Reflection Report Template

Instruction

After finishing your pre-class reading and watching the demonstration video, please respond to the questions below.

Student's No-:

1. What topic have you studied this week?
2. Describe at least three new things that you have learned from the pre-class reading and demonstration video
3. What areas did you find hard understand or confusing?
4. How do you think you will use the knowledge you have gained from this topic in your future practice as a baccalaureate nurse in Uganda?

Appendix D: Checklist for Each Skill**NG TUBE INSERTION**

Student Name: _____ Reg. No: _____

Key Areas to Assess	Score	Done	Not Done	Total
Explains procedure to patient, provides privacy, washes hands	1			
Prepares equipment on tray correctly	1			
Positions patient in high Fowler's position	1			
Measures correct tube length	2			
Lubricates tube tip appropriately	1			
Inserts tube gently through nostril	2			
Encourages swallowing during advancement	1			
Confirms placement correctly	2			
Secures tube properly to nose	1			
Documents procedure	1			
TOTAL	13			

Examiner's Comments:

.....

OXYGEN ADMINISTRATION VIA NASAL CANNULA

Student Name: _____ Reg. No: _____

Key Areas to Assess	Score	Done	Not Done	Total
Explains procedure and washes hands	1			
Assembles equipment	1			
Checks prescription	1			
Positions patient properly	1			
Sets prescribed flow rate accurately	2			
Applies nasal cannula correctly	1			
Assesses response	2			
Maintains oxygen safety	1			
Documents findings	1			
TOTAL	11			

Examiner's Comments:

.....

BLOOD PRESSURE MEASUREMENT

Student Name: _____ Reg. No: _____

Key Areas to Assess	Score	Done	Not Done	Total
Explains procedure and washes hands	1			
Prepares BP machine and stethoscope	1			
Positions patient correctly	1			
Applies cuff correctly	2			
Locates brachial artery	1			
Deflates slowly while auscultating	2			
Reads systolic accurately	1			
Reads diastolic accurately	1			
Documents findings	1			
TOTAL	11			

Examiner's Comments:

.....

IV CANNULATION

Student Name: _____ Reg. No: _____

Key Areas to Assess	Score	Done	Not Done	Total
Explains procedure and washes hands	1			
Prepares equipment	1			
Selects appropriate vein	2			
Applies tourniquet	1			
Cleans insertion site aseptically	2			
Inserts cannula correctly	2			
Secures cannula	1			
Disposes sharps safely	1			
Documents procedure	1			
TOTAL	12			

Examiner's Comments:

.....

Appendix E: Permission from REC



UGANDA CHRISTIAN UNIVERSITY
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Office of the Vice Chancellor
Research Ethics Committee UG-026



12th January, 2026

JOY MIREMBE
Uganda Christian University
christinejoymkamaoga@gmail.com
0773 956070



UG-REC-026 APPROVAL NOTICE

To: Joy Mirembe; Principal Investigator

Re: UCU-REC Application titled: *Baccalaureate Nursing Students' Perceptions of Learning Practical Nursing Skills Using the Flipped Classroom Method at a University in Central Uganda.*

Application Number: UCUREC-2025-2017

Version: 4.1

Type of Review:

- ☐ INITIAL REVIEW
- ☐ Protocol Amendment
- ☐ Letter of Amendment
- ☐ Continuing Review
- ☐ Material Transfer Agreement
- ☐ Other, Specify:

I am pleased to inform you that the **UG-REC-026**; UCUREC under expedited review approved the above referenced application.

Approval of the research is for a period from 12th January, 2026 to 12th January, 2027.

This research is considered minimal risk category.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and additions to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes. The REC application number assigned to the research should be cited in any correspondence.

Research and Ethics

P.O. Box 4, Mukono, Uganda. Plot 67/173, Bishop Tucker Road, Mukono Hill



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Office of the Vice Chancellor
Research Ethics Committee UG-026



3. Reports of unanticipated problems involving risks to participants or other must be submitted to the REC. New information that becomes available which could change the risk: benefit ratio must be submitted promptly for REC review.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by subjects and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Regulations require review of an approved study not less than once per 12-month period. **Therefore, a continuing review application must be submitted to the REC eight weeks prior to the above expiration date of 12th January, 2027 in order to continue the study beyond the approved period.** Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study, at which point new participants may not be enrolled and currently enrolled participants must be taken off the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. Your research details have been shared with the Executive secretary of Uganda National Council for Science and Technology (UNCST) and you are **not** required to get clearance. Refer to UNCST Research registration and clearance Policy and guidelines (July 2016) in Uganda section 6.

The following is the list of all documents approved in this application by UG-REC _026:

No.	Document Title	Language	Version	Version Date
1.	Protocol	English	1.0	2026-01-12
2.	Budget	English	1.0	2026-01-12
3.	Study work plan	English	1.0	2026-01-12
4.	Research Tools	English	1.0	2026-01-12
5.	Informed Consent forms	English	1.0	2026-01-12

Signed and Stamped

Prof. Peter Waiswa
UCUREC Chairperson
pwaiswa@musph.ac.ug



Appendix F: Consent Form

Title of Study: Baccalaureate Nursing Students' Perceptions of Learning Practical Nursing Skills Using the Flipped Classroom Method at a University in Central Uganda

No.	Name of Investigator	Designation	Address/Telephone/Email	Institution of Affiliation
1.	Mirembe Joy	Principal Investigator	christinejoymkamoga@gmail.com	UCU
2.	Dr. Faith R.K. Sebuliba	Co-investigator/ Academic supervisor	fsebuliba@ucu.ac.ug	UCU

Introduction and rationale of the Study

You are invited to participate in a research study conducted by Mirembe Joy, a tutorial assistant at Uganda Christian University (UCU). The purpose of this study to capture your views on how well you understand the theory behind the skills and how competent you feel in practically performing those skills after experiencing the flipped classroom method. We are also interested in how your readiness (your motivation, ability to learn on your own, and comfort with using technology) shapes these perceptions. Your honest input will provide the first local evidence to help educators improve the teaching of practical nursing skills in Uganda, ultimately contributing to better-prepared and safer nurses.

2. Description of the Research

This is a descriptive cross-sectional design of the quantitative approach. It describes the perception of baccalaureate nursing students' perception of learning practical nursing skills when taught using the flipped classroom method at a Ugandan educational setting.

3. Participation

Participants will be second-year baccalaureate nursing students. This specific group has been chosen because that they are still in their developmental phases of learning practical nursing skills. Their perceptions provides insights into how flipped classroom method may influence foundational learning.

4. Potential Risks and Discomforts

There are minimal risks, primarily time commitment when attempting pre-class activities, and completion of questionnaires. No physical, academic, or emotional harm.

5. Potential Benefits

As a participant in this study, you may gain clear understanding of the theory behind the practical using skills being taught and substantial competence in performing them. The findings from this study may provide valuable insights that may guide nurse educators in the selection and implementation teaching strategies that enhance active student participation, development of critical thinking abilities, and mastery of practical nursing skills. The findings may also may inform curriculum development and instructional design in nursing programs, ultimately contributing to preparation of more competent and confident graduate nurses.

6. Confidentiality

The information you give us, will be confidential and only used for purposes of this study. In the process of report writing, your name will never be used and so your responses will remain anonymous. We shall ask questions about your readiness for flipped classroom learning, perceptions of learning in terms of theoretical knowledge, and practical competence gained to perform practical nursing skills after being taught using the flipped classroom method. If you do not wish to respond to a particular question, you can simply ignore it and proceed to the next.

Every participant will be asked to sign a written study informed consent form before participating in the study as this ensures voluntarism and acceptability to participate in the study.

7. Procedure

If you agree to participate:

You will complete a readiness questionnaire (RFCQ) one week before the flipped classroom sessions begin.

You will participate in four separate weekly flipped classroom sessions. Each weeks' session will last for four hours covering one practical nursing skill.

Immediately after the fourth session, you will complete a perception questionnaire (PFCQ) about your learning experience.

Filling each of the questionnaires will take approximately 30 minutes. Participation is voluntary. The study will start by having the teacher post pre-class materials five days before the physical classroom session. These materials include, a recorded video (5-10 minutes) that gives a step by step demonstration of the procedure, PowerPoint slides that are related to that skill, textbook chapters that refer to the theoretical background of that skill, and a reading reflection report assignment. You will then be required to engage with the pre-class materials and try out the skill on your own, at your own pace to build basic comprehension. You will then be required to submit the reading reflection report at least one day prior to the classroom session to ensure that the teacher can get to read your reports and pay attention to the areas of misconception and hard to grasp concepts that could be covered consciously in the classroom. During the physical class session (lasting for four hours), the teacher will lead the discussion of your reading reflection reports, and explain hard concepts. You will brainstorm and discuss concepts reflecting on what you learned before the class. You will then practice the skill under teacher supervision, evaluating strengths and weaknesses to deepen understanding and build confidence. Then, you

will participate in interactive activities, such as simulation-based scenarios, equipment setup, and skill performance with intentional errors introduced for them to identify and correct. Finally, you will perform a hands-on demonstration of the practical nursing skill under explaining the rationale behind every step in the presence of the teacher. You will be given chance to evaluation your performance and receive individualized feedback from the teacher.

8. Voluntary Participation

Your decision to participate in this study is completely voluntary. If you decide to not participate in this study, it will not affect your grade in any way.

9. Withdrawal from the Study and/or Withdrawal of Authorization

As a participant in this study, you can withdraw at any point if you choose not to continue. You have every right and freedom on any decision you want regarding this study. You may choose to respond to particular questions and ignore those that don't wish to answer.

10. Reimbursements

There are no financial benefits or payments for participating in this study.

Ethical approvals.

This study was Approved by Uganda Christian University Research Ethics Committee (UCU-REC) and cleared by Uganda national Council for Science and Technology (UNCST), In case of any Ethical or your rights related concerns or inquiries, please contact UCUREC Chairperson; Prof. Peter Waiswa, 0772405357, pwaiswa@musph.ac.ug or UCUREC Manager, Mr. Osborn Ahimbisibwe, 0775737627 or oahimbisibwe@ucu.ac.ug. UNCST: Tel; +256 414 705500, info@uncst.go.ug

12. Authorization Statement

I have read and understood the information provided about the study. I have had the opportunity to ask questions and have received satisfactory answers. I understand that my participation is

voluntary, and I can withdraw at any time before completing the questionnaire without penalty. I agree to participate in the study as described.

Participant's Signature: _____

Date: _____

Researcher's Signature: _____

Date: _____

Appendix H: Tables

Section A: Demographic Characteristics

Variable	Frequency (n)	Percentage (%)
Age;		
19	3	2.6
20	40	34.5
21	41	35.3
22	26	22.4
23	6	5.2
Gender;		
Male	36	31.0
Female	80	69.0
Prior Flipped Classroom Experience;		
Yes	0	0.0
No	116	100
Learning device owned;		
Smartphone	60	51.7
Laptop	51	44.0
Tablet/ipad	5	4.4
None	0	0.0
Internet Access for Learning;		
Always	91	78.4
Sometimes	25	21.6
Rarely	0	0.0
None	0	0.0

Section B: Perception Items

Theoretical knowledge

Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
Pre-class videos clearly explained the theory	0	0	0	116	4.00	0.000
Reading materials helped me understand the “why” of each step	0	0	6	110	3.95	0.222
I could pause and rewind videos	0	0	0	116	4.00	0.000
Reading reflection report helped	0	0	23	93	3.80	0.400
Class discussions clarified confusing parts	0	0	3	113	3.97	0.159
Brainstorming in class deepened my understanding	0	0	13	103	3.98	0.317
I felt confident explaining the theory	0	4	9	103	3.95	0.443
Pre-class preparation made me follow the in-class	0	0	7	109	3.94	0.239
I could link the theory	0	0	0	116	4.00	0.000
I feel I retain the theoretical knowledge better	0	0	0	116	4.00	0.000

Practical competence

Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
In-class practice helped me apply what I learned	0	0	10	106	3.91	0.282
Improved my critical thinking	0	0	0	116	4.00	0.000
Group activities helped me correct mistakes	0	0	6	110	3.95	0.222
More opportunities to practice	0	0	0	116	4.00	0.000
Peer feedback and teacher guidance in class helped	0	0	1	115	3.99	0.093
Simulations helped me recognize and correct errors	0	0	0	116	4.00	0.000
Role-play scenarios prepared me for real patient	0	0	5	111	3.96	0.204
I know how to prepare and set up equipment	0	0	5	111	3.96	0.204
I can perform the procedure safely	0	0	11	105	3.94	0.239
I feel competent and ready to perform	0	0	7	109	3.91	0.294

Section C: Readiness Items

Motivation items

Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
Excited to use videos before class	0	0	0	116	4.00	0.000
Preparation before class equals better performance	0	0	1	115	3.99	0.093
Willing to spend extra time outside class	0	0	3	113	3.97	0.159
Motivated to learn at my own pace	0	0	0	116	4.00	0.000
Prefer active participation	0	0	0	116	4.00	0.000

Self-directed Learning Items

Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
Plan and effectively complete pre-class tasks.	0	1	43	72	3.61	0.507
Find answers	1	11	54	50	3.32	0.680
Stay focused without a teacher	8	34	53	21	2.75	0.833
Finish assignments on time when given deadlines	0	4	57	55	3.44	0.564
Reflect on what I have learned	0	0	45	71	3.61	0.489

Technological preparedness

Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
Comfortable using smartphones	0	1	6	109	3.93	0.287
Reliable internet access	0	1	29	86	3.73	0.464
Pause, rewind, and take notes while watching a video.	0	0	0	116	4.00	0.000
Open and read PDF files or PowerPoint slides on my device	0	0	2	114	3.98	0.131
Confident using the university's online learning platform.	0	0	6	110	3.95	0.222