OUTCOMES OF SELF-DIRECTED LEARNING AND TRADITIONAL DIDACTIC LECTURE-BASED METHOD AMONG NURSING STUDENTS IN SOUTHWESTERN NIGERIA

BY

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ABSTRACT

Nurse educators are expected to utilise diverse creative, active strategies in teaching Nursing Students (NS). Self-Directed Learning (SDL) is an active educational method that could produce desirable outcomes of lifelong learning skills. Due to increasingly complex healthcare environment of the twenty-first century, SDL is needed for nurses to remain relevant and productive. However, there is dearth of evidence on the use of SDL in comparison with Traditional Didactic Lecture-Based Method (TDLM) among Nigerian NS. The study was designed to assess outcomes of SDL and TDLM among NS in Southwestern Nigeria.

Two-group quasi experimental design was utilised. Three states out of six in Southwestern Nigeria were randomly selected by balloting. Among the sixteen accredited Nursing programmes in the selected states, four schools were selected by balloting, two from hospital-based and two from university-based institutions. They were assigned into two groups through a coin-toss method: one hospital-based and one University-based Nursing programme in each group; Intervention Group (IG) and Control Group (CG). A total of 165 NS consented, and participated from Pre-Intervention (P1) to Post-Intervention (P2): IG had 77 and CG 88 NS. Pre-intervention data were collected using a validated structured-questionnaire on Knowledge of Medical-Surgical Nursing (KMSN), Attitude to Learning (ATL) and Preferred Learning Strategy (PLS). The IG received SDL educational intervention of 2 hours daily, 3 times weekly for 8 weeks in Medical-Surgical Nursing course using an adapted and modified SDL module. The CG had same selected topics taught using TDLM. Both IG and CG were assessed on the topics at P2 by week 8. The knowledge score was categorised as good ≥ 25(50%) and poor <25(50%), change in ATL was measured using 240-point attitudinal scale; categorised as positive ≥ 120 and negative <120 while PLS was measured with a 50-point scale, categorised as good ≥ 25 and poor <25. Data were analysed using descriptive statistics, t-test, Chi-square test and multiple linear regression at $\alpha_{0.05.}$

The mean age of NS in the two groups was not significantly different in value (IG 20.88±3.52; CG 21.47±2.61), also distribution for gender and type of secondary school attended were similar. The KMSN scores were comparable between IG and CG at P1, both groups had scores below 50% (IG 21.4±6.0; CG 22.4±7.0) while at P2 the IG score was higher (35.1±4.8); CG (27.9±4.2), everyone in the IG obtained a difference in knowledge with scores above 50% also within IG, P2 (35.1±4.8); P1 (21.4±6.0) showing improved performance unlike the CG. The ATL score of IG and CG were similar at P1 but higher at P2 with (IG 202.56±11.74; CG 163.45±11.15) and within IG, P2 (202.56±11.74); P1 (179.79±19.31). This shows improved attitude towards SDL. The PLS scores were comparable at P1 but higher for SDL at P2 between IG (43.29±2.4) and CG (38.38±4.3) and within IG, P2 (43.29.0±2.4); P1 (36.9±4.9), reflecting a preference for SDL.

Self-directed learning enhanced learning outcomes compared to traditional didactic lecture-based method. Therefore, nursing training institutions should provide necessary resources and embrace self-directed learning to produce lifelong learning nursing professionals.

Keywords: Self-directed learning, Didactic lecture-based method, preferred learning strategy, Attitude to Self-directed learning

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CERTIFICATION

I certify that this work titled "Outcomes of Self-Directed Learning and Traditional Didactic Lecture-Based Method among Nursing Students in Southwestern Nigeria" was carried out by Pauline Ojekou Guobadia in the Department of Nursing, Faculty of Clinical Sciences, University of Ibadan under my supervision.

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DEDICATION

This work is dedicated to the Almighty God for His abundant Grace and Mercy upon me and my family. To my father, Mr. Michael Abam Ifere of blessed memory, who encouraged me to become a nurse and to Dr. (Mrs) Modupe Olusola Oyetunde also of blessed memory who was my initial supervisor, a friend and succor, for not giving up on me. I love you dearly, your memories live on.

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INTRODUCTION

1.1 Background to the Study

Healthcare in contemporary times is complex with patient care and hospital industries evolving very fast. Healthcare providers including nurses need to be more in tune with current happenings within their profession to give the best of care. The way Nurse Educators approach nursing education and classroom learning styles should adapt and grow with the changes. Nurse Educators need to utilise varieties of teaching methods to ensure their students learn well to prepare for the world of work. A singular approach of teaching concepts and theories using the didactic teaching method still has its place, but the benefits of implementing active learning strategies in nursing education are impossible to ignore. Whatever the teaching strategy utilized in a training institution, it is important that it should produce desirable outcomes. Consequently it should enable learners to exhibit a sound knowledge of the basic theories, as well as the aptitude to efficiently deploy their job-related and generic skills. In addition, there should be essential knowledge, skills or attitudes demonstrated by an individual due to learning exposures which would be the minimum competency that must be attained after completing a course or programme. A training course or programme can be appraised using criteria such as essential knowledge and skills that the learners acquire, and can reliably demonstrate in relationship to defined objectives. These are tagged exit behaviours and are documented as learning outcomes (Lesch, 2017). The outcomes to assess in this study include knowledge, attitude of the nursing students to self-directed learning, nursing students' preferred learning strategy and factors which influence the choice of the preferred learning strategy among the nursing students.

Knowledge is an abstract concept; it is a meaningful structure of facts into some relationships. It is developed by exposure of an individual to facts and skills through experience or education leading to theoretical or practical understanding of a subject (Bolisani and Bratianu, 2018). The knowledge the nursing students acquired during the period of training determines their competency and ability to be self-directed life-long learning professionals. Likewise, attitude which is an individual's characteristic way of responding consistently in a favourable or unfavourable manner to objects, people, events or phenomena in his environment can affect knowledge acquisition and competencies in nursing skills. Attitudes are learned through experience, they are predispositions and reside in the mind of the individual bringing about consistent behaviour. Attitudes may be strongly or weakly held; they are dynamic and can change although some attitudes are more fundamental than others therefore are resistant to change.

As nurse educators, it is necessary to consider the individuality of each nursing student which can influence their preferred ways to absorb, process and retain new information and skills. This is necessary as the nurse educator/training facilitator needs to make sure that the knowledge impartation process puts into consideration these individual differences. The individual nursing students' preferred learning strategy can influence the outcomes of self-directed learning and normal class didactic lecture method in this study. Apart from the above stated, there are some other factors such as number of teachers in the school, type of examination questions predominantly used in the school, availability of internet access and a rich current library, workload and students exposure to clinical experience where they can learn in a natural environment away from classroom lectures.

Traditional didactic lecture-based method of teaching is an old way of teaching and still the most widely used in schools and colleges (Basavanthappa, 2018). It provides learners with the essential theoretical knowledge. The lecture-based approach is a reliable way of imparting knowledge to learners who are not self-reliant when it comes to the acquisition of knowledge. It is also used to impart elementary skills of reading and writing. Teachers are the source of knowledge transferred to students through didactic method. In didactic lecture-based mode of training students, the teacher instructs the learners who are mostly

docile listeners. Didactic mode of teaching is content oriented based on previously stated objectives inculcating information on the subject matter, with the hope that it will translate to the transfer of knowledge. The content or knowledge of the teacher is not questioned as the student activity involves learning by listening and memorisation.

Didactic teaching methods mostly result in superficial learning and utilises an appraisal system that rates students on the ability to reproduce facts. Thus, it encourages students to memorise facts just to pass a test or examination. Results from a growing number of researchers have shown that the traditional approach does not enable learners to effectively apply, and integrate knowledge to new situations. This teaching approach appears to limit the learner's ability to adapt the knowledge acquired to tackle real-life issues, especially in the clinical context where serious thinking is required (Darling-Hammond, Flook, Cook-Harvey, Barron & Osher, 2020). However, there is evidence showing that didactic lecture-based method of teaching can be effective when it is well applied, and can be invaluable in the acquisition or transfer of knowledge. In practice, the lectures provide lecturers an avenue to present to students a peculiar view of learning materials, integrate evidence from diverse sources, and explain difficult concepts (Abdulbaki, Suhaimi, Alsaqqaf and Jawad, 2018).

As technology advances, the traditional didactic lecture-based method of teaching is rapidly becoming a teaching method of the past, especially in a health related training programme (Rae and O'Malley 2017). Health related training colleges are daily required to develop individuals who will be self-reliant learners and who can continue with the adventure of seeking more knowledge, even after graduating (Monroe, 2016). Teaching methods with diverse strategies need to be fully adopted by health care training institutions to equip the products of such institutions with the essential information and skills to cope with the constant technological changes in health care environments, working with patients, especially in adverse conditions and managing new, re-emerging and complicated health related issues (WHO, 2016). This makes it a necessity for nurse tutors to assist learners in their adventure to acquire knowledge through self-directed learning.

Knowles (1975) was the first person to described self-directed learning (SDL) in the expansive sense as a process where individuals, supported or not are able to decipher their learning requirements, articulate learning agenda, select learning resources, execute the knowledge seeking schemes and assess the outcomes of the venture. It is the process of knowledge acquisition through problem solving, work experience and the promotion of professional practice (Örs, 2018). Self-Directed Learning is usually attained through actively engaging students as major stakeholders in the teaching-learning activities. It attracted a lot of consideration in training programmes in nursing institution in previous decades because of the intricacies as well as reforms as the nursing profession advances (Shirazi, Sharif, Molazem and Alborzi, 2017). The major element of autonomous learning is the deliberate acceptance of responsibility by the individual who wants to acquire knowledge through the learning process. Self-reliant students are regarded as being dependent on personal attributes like self-confidence, attitude, curiosity, aptitudes and their individualities which determine their learning styles (Toit-Brits and Zyl, 2017). Knowles also stated that the proactive SDL method would be an essential skill for survival in lifelong learning (Kan'an and Osman 2015).

As nursing profession and education advances, it may not be easy to transfer knowledge and every experience required by students to become skilled professional in the stipulated period via the didactic method of teaching (WHO, 2016). Self-directed learning was identified as a vital learning method for overcoming the challenges encountered by nursing professionals (Salmond and Echevarria, 2017). The SDL Learning schemes include: acquisition of knowledge through reading, discussion, project method of teaching, group work, take home assignments, personal scholarship, self-instructive applications, channelled learning or study, technology assisted learning (including teleconferencing, group assignment, learning contracts and remote or distance education (Soper, 2017). The preparedness to adopt autonomous learning is a correlate of individual characteristics and curriculum implemented in institutions (Premkumar, Vinod, Sathishkumar, Pulimood, Umaefulam, et. al., 2018).

The responsibility of the nurse educator is in preparing and supporting nurses to act positively towards challenges encountered in the healthcare industry and the unpredictable world by incorporating the entire concept of informatics into the education of nurses (Harerimana, Wicking, Biedermann and Yates, 2020). There is need to promote autonomous learning, highlighting its worth to knowledge seekers in effective search for new knowledge and its application (Benner, Hughes and Sutphen, 2016). Although it is impossible to substitute didactic methods of teaching completely with SDL in nursing education, it would be worthwhile to attempt to fully incorporate SDL into the implementation of the nursing training curriculum (Sajeevan and Jose 2018). The complex work ambience encountered by nurses present numerous challenges, especially the persisting social and scientific changes that are peculiar to the health sector (Kozier and Erbs, 2021; WHO, 2016). Nurses who are incapable of guiding their learning activities may not acquire the mandatory skills to handle the intricacies and reforms in the health sector. These skills are specific to individuals and can be influenced by attributes such as assertiveness, creativity, and inherent qualities of the student (Sahoo, 2016).

The researcher, having schooled in Nigeria observed that the nature of the curriculum of programmes of most Nigerian schools have been primarily that of learners being dependent on teachers. Learning schemes that would facilitate learner independence of teachers, though included in the post-secondary school curriculum have not been fully adopted. Pale, (2016) stated that traditionally, the teachers champion the learning process, while students take a receptive position in the learning process. This is equally applicable to education in Nigeria. The curriculum for General Nursing programme in Nigeria reviewed periodically by a committee set up by the Nursing and Midwifery Council of Nigeria (N&MCN) emphasises using diverse, as well as high impact teaching methods in nursing education. The curriculum combines a period of classroom instruction, clinical experience, field trips and carrying out researches, case study of clients nursed by the student and case presentations, both as individuals and as a group within a stipulated period before certification as professional nurses (N&MCN, 2016). Involving nurses in the clinical sessions is a crucial aspect of their training. This enables student nurses to be conversant with the “doing” and “knowing” the fundamental principles of the clinical

practice. This clinical ambience affords student nurses the opportunity to employ their critical thinking skills to proffer solutions to problems, (Ahmady and Shahbazi, 2020).

In order to be able to render quality nursing care to clients, health professionals need to be involved in lifelong learning, to advance their skills, services and professional development. This is further enhanced as personnel in the health care discipline face life-threatening situations, manage unanticipated cases as they care for patients on a daily basis, and as a result, they are compelled to learn from their work experiences (Kozier and Erbs, 2021). The dynamic and changing nature of the health care work environments makes SDL skill important for nurses in training to develop. It has been observed that learners gained more knowledge through SDL than collaborative learning sessions or lectures (Sajeevan and Jose 2018). Notwithstanding the advantages, SDL has not been accorded the importance that it deserves in nursing programmes in Nigeria. There is ample evidence to show that learners who adopt SDL are usually more innovative, inquisitive and surpass their colleagues in class activities. In addition, SDL students are usually more accomplished in life and have a clearer vision about their future (Williamson and Seewoodhary, 2017).

Considering that the health care industry is undergoing changes every day in an unpredictable world, it is necessary to look for and adopt teaching strategies that would allow knowledge seekers to be self-reliant in the lifelong learning journey when they eventually become professional nurses (WHO, 2016). Hence the researcher has decided to assess learning outcomes of self-directed learning and didactic lecture-based method among nursing students in selected nursing schools in Southwestern Nigeria to see which will be better for a lifelong learning profession such as nursing.

1.2 Statement of the Problem

Nurses require up to date knowledge to meet the ever changing needs in health care. This is necessitated by the complex clinical environment and issues arising from the endless social and technical changes in the world (Kozier and Erbs, 2021; WHO, 2016). Nursing is a lifelong learning profession and nurses are expected to be current with evidence based findings, which would help them give quality nursing care. For nursing students to be able to remain current when they become professionals and are no longer undergoing any formal educational programme, they need to be self-directed in learning.

An assumption among many educators is that students who attend college would develop the necessary self-directed learning skills simply by attendance in class and participation in class discussions and presentations (Wilson, 2016), but sometimes it does not happen that way as some students in nursing programmes graduate without acquiring all the skills necessary to be lifelong learners. The structure and the orientation of educational designs in the general nursing curriculum for nursing students in Nigeria emphasizes the importance of utilizing diverse teaching strategies in teaching nursing students. These strategies are designed to facilitate learners' independence of teachers. Inclusively, there are numerous resources available for nursing instructors and to students to develop lifelong learning skills, but effective use of these resources is doubted. The learning approach that would stimulate learner independence of their teachers has not been fully adopted in Nigerian nursing schools. Observations and comments show that even in post-secondary or tertiary institutions, students expect lecturers to give handouts to facilitate learning. This is not the best for a profession like nursing where the professionals are expected to be current with evidence-based information to remain relevant and productive for life.

The consequences of this is that nurses who are unable to guide their own learning may not be equipped with current knowledge and skills that are essential in tackling the complex and changing nature of the health care field. Such nurses would not be competent enough to render quality nursing care using the modern advanced health care gadgets which will prolong the patients' hospital stay, increase mortality rate and cost of health

care. In order to address these challenges, there is need for nursing education programmes to place greater emphasis on adult education, in particular self-directed learning, believing it is useful for learners to be given the skills to effectively search for, discover, examine and apply new knowledge independently. In addition, with the current emphasis on improving critical thinking and student achievement, there will be need to reassess educational strategies promoting the use of self-directed learning to meet the students' need for competent learning outcome.

Student centered learning facilitates learning experiences where the students are active learners. This will equip the nursing students to successfully adjust and act in response to the challenges in the health care setting as they are armed with current information through continuing education. They would also develop independent problem-solving skills. Evidence has it that nurses do not have enough time and access to current journals to enable them read research findings, and discover current evidenced based information to render quality nursing care with new technology (Mahmoud and Abdelrasol, 2019). If the nurses are self-directed in nature, they will go out of their way to search for current evidenced based information to render care. In order to bridge this gap, this investigation seeks to assess the outcomes of autonomous Learning and Traditional Didactic Lecture-Based Method to see which would be better in nursing education.

1.3 Broad Objective

The central focus of the investigation was to assess outcomes of Self-Directed Learning and Didactic Lecture-Based Method among student nurses in Southwestern Nigeria.

1.4 Specific Objectives of the Study

1. To assess nursing students' knowledge of common situations in Medical-Surgical Nursing that threaten human adaptation at pre and post-interventions.
2. To identify nursing students' attitude towards self-directed learning before and after exposure to the interventions.
3. To establish the preferred learning strategy between self-directed learning and traditional didactic lecture-based method among nursing students at pre and post interventions.

4. To identify factors that influence the choice of learning strategy among nursing students at pre-interventions.
5. To describe the self-directed learning readiness level of nursing students at pre and post interventions.

1.5 Research Questions

The study answers the listed research questions:

1. What level of knowledge do nursing students have about common situations in Medical-Surgical Nursing that threaten human adaptation at pre and post-interventions?
2. What is the nursing students' attitude towards self-directed learning at pre and post-interventions?
3. What is the preferred learning strategy between self-directed learning and traditional didactic lecture-based method among nursing students?
4. What are the factors that influence choice of learning strategy among nursing students?
5. What is the self-directed learning readiness level of nursing students at pre and post-interventions?

1.6 Significance of the Study

In Nigeria, many challenges inhibiting the integration of independent learning into the nursing training programmes are enormous such as lack of free internet facility, erratic power supply and inadequate current journals and textbooks in school libraries. The result of this investigation, therefore hopes to increase the body of knowledge on differentiated instructions in institutions offering nursing programmes. It will also provide a platform for nurse educators to know how ready nursing students are to be independent learners so as to encourage critical thinking. The study will also provide information that will guide teachers on how to actively engage students as adult learners to find out things together. Also, findings from this study will be given as a feedback during meetings to the institutions used in this study with the hope of encouraging the schools to provide a milieu for a re-orientation of teachers' beliefs on acquisition of new ways of teaching to promote

better understanding, bring about an intervention for stakeholders to encourage schools of nursing to adopt an interactive and dynamic learner-based method of instruction delivery.

Similarly, the findings would be useful as a guide for nurse educators to adopt practices that would enable learners to realise their learning pattern, evaluate their readiness and be self-reliant in their knowledge seeking venture. Furthermore, it is anticipated that the study findings if disseminated to nursing training institutions would serve as pointers to institutions of learning to facilitate the provision of facilities that would promote self-directed learning. This would be valuable in producing professional nurses who are scientific, critical thinkers, versatile in all aspects of nursing and health care, and are well furnished with the prerequisite skills for dealing with job related challenges.
Self-Directed Learning advocates a way of bridging the gap between the theoretical aspect of school knowledge, related issues and how people acquire knowledge. It also builds domain-based skills of learners and the ability to transfer theoretical understanding to new knowledge areas (Lemmetty and Collin, 2020).

In addition, since the Nursing and Midwifery Council of Nigeria's curriculum is reviewed periodically, the findings would be a pointer to the reviewers to ensure constructivist teaching approaches are enforced in the Basic Nursing Curriculum. Ensuring self-directed learning is used would enable nursing students regulate their cognitive learning strategies and become equipped with the skills that are essential for innovative implementation of nursing strategies, to deliver safe and adequate nursing services to patients from different ethnic backgrounds or context.

1.7 Delimitation of the Study

The participants who were involved in the investigation were students in their second or third year, with their age and educational background taken into consideration. Both genders were involved in the study. The study was restricted to four selected Schools of Nursing offering basic nursing courses in Southwestern Nigeria.

1.8 Operational Definitions

Outcome: refers to the knowledge or skills nursing students have acquired by the end of a six week interaction using self-directed learning and didactic classroom lecture method of teaching when evaluated using previously stated objectives. The outcomes referred to in this study are ability of the nursing students to obtain a difference in knowledge with a score of 50% or above in common situations that threaten adaptation at post intervention, display a change in attitude towards self-directed learning and indicate a preference for SDL as a learning style.

Self-Directed Learning (SDL) or Autonomous or Independent Learning: This is the adults' way of learning which was utilized in this study to inspire nurses in training to exercise independence learning by the researcher working with the students as co-learners to review the topics to be learned together, identify and set learning objectives, determine what is to be learned and the method of learning, search the web and library for necessary information to enhance learning and evaluate the outcome of the learning exercise at the end of eight weeks.

Strategies: refers to plans, specific ways and activities devised and employed for the realization of a goal, the strategies in this study were self-directed learning and traditional didactic lecture-based method of teaching.

Teaching: This is the act of exposing the nursing students to series of experience and information through self-directed learning or traditional didactic class lecture based method that brings about advancement in knowledge and provision of competent client care.

Traditional Didactic Lecture-based Method: involves exposing students to information that brings about advancement in knowledge and provision of competent client care by the teacher giving all the required information to the students during interaction in a classroom environment with the nursing students being passive learners.

Nursing students: These are adult learners who have been through secondary school education and are now enrolled in Schools of Nursing to become certified professional

nurses. The nursing students referred to in this study are those who were in the second or third year in university and hospital based nursing schools in Southwestern Nigeria.

Nurse: An individual male or female who has completed a professional training in an accredited school of nursing and is licensed to care for people who are sick or well, but need the help of a professional to carry out normal activities of daily living.

Nurse Educator: An individual male or female who has completed a professional training in an accredited higher institution offering training for trainers in the nursing profession and is licensed to transfer that knowledge to young individuals who are eligible and interested to become professional nurses within an institution of nursing training.

Teaching Methods: These are specific ways and activities utilized by a more learned professional nurse who has undergone training and is licensed to teach and transfer knowledge to an upcoming professional in nursing.

Common situations in Medical-Surgical Nursing that threaten human adaptation: This is the Unit III of the Medical-Surgical Nursing Course in the General Nursing Curriculum. The common situations include: Headache, Pain (as the 5th vital sign), Fever, Fatigue, Allergy and Unconsciousness. These situations were taught to the nursing students using self-directed learning for the students in the intervention group and traditional didactic lecture based method for students in the control group of this study.

Knowledge: The knowledge the nursing students acquired during the six weeks period of interaction using self-directed learning strategies and didactic lecture based method of teaching leading to the ability of the nursing students to obtain a difference in knowledge with a score of 50% or above in the test items covering common situations that threaten adaptation at post intervention.

Attitude: This is the nursing student's characteristic way of responding consistently in a favourable or unfavourable manner to the use of self-directed learning or traditional didactic lecture based method of teaching.

Factors: These are other variables that can influence the choice of preferred learning strategy among the nursing students. The variables referred to in this study are number of teachers in each school, predominant teaching methods, type of examination questions, availability of internet access, current and rich library facilities, workload on the students and exposure to clinical experience.

Self-Directed Learning Readiness Level: This is how prepared nursing students are to take up responsibility of their own learning, accept the outcome and be independent learners.

CHAPTER TWO
LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The empirical reviews, conceptual and theoretical frameworks for this study are presented in this chapter.

Outline of Literature Review

- Concept of Learning
- Teaching Methods
- Traditional Didactic Lecture-Based Method of Teaching
- Self-directed learning
- Self-Directed Learning Readiness Level (SDLRS)
- Instruments to Assess SDLRS
- How to Interpret the SDLRS-A/LPA Score
- Self-Directed Learning Strategies
- Benefits of Self-Directed Learning
- The role of educators and institutions in facilitating self-directed learning
- A Comparative exploration of Self-Directed Learning and Traditional Didactic Lecture
- Learning Styles
- Need for Reflective Learning in Nursing
- Learning Outcomes
- Benefits of using learning outcomes
- Empirical Review
- Theoretical Framework: Personal Responsibility Orientation" (PRO) Model
- Conceptual framework
- Null hypotheses

2.1 Concept of Learning

Learning is the process of acquiring new understanding, knowledge, behaviour, skills, values, attitudes and preferences, a change in response or behaviour involving some degree of performance. Learning may be caused partly or wholly by a conscious or unconscious experience. Some learning is immediate, induced by a single event, but much skill and knowledge accumulate from repeated efforts of the individual and it is progressive in nature. It involves new ways of doing things. The changes induced by learning often last a lifetime. The change in behaviour that comes with learning involves the way a person thinks and feels as well as his overt actions. Changes in behaviour resulting from experiences; mental, physical, emotional and social constitute the essence of living not those which merely occur in the process of maturation (Bawa, Ajelabi and Saminu 2019).

Learning is a process of apprehension, clarification and application of meanings involving series of operations each one reached by a learner at a given point in time. The operations include the following:

Observation: This is the ability to note details; attending seeing what is going on in the course of an experience, an event or a situation.

Description: recalling and verbalizing what went on or writing it down; it is the collection of the data of experience.

Analysis: Identifying possible and significant meanings; abstracting the essence from a variety of details, comparing and noting similarities and dissimilarities.

Validation of the learning products: checking the meanings and the inferences derived by the learner with others, readings and literature to see if there is agreement, and

Evaluation: Testing the learning product through usage.

This effective learning is not mere accumulation of facts but a discovery of relationship between parts of the whole, between facts and principles and between principles and actions; it involves the ability to use knowledge in the pursuit of goals (Bromley 2017).

2.1.1 Characteristics of Learning

The general characteristics of learning are as follows;

i. **Learning is growth**: As an individual grows physically through his experience and activities, there is also the mental development. Therefore learning is growth through experience.
ii. **Learning is adjustment**: Learning helps the individual to adjust adequately to new situations which demand solution. Repeated efforts are required to react to these new situations effectively and find solutions accordingly.
iii. **Learning is organising experience**: Learning is not merely addition of knowledge or acquisition of facts but the organization of the experience to be useful in a completely new situation.
iv. **Learning is purposeful:** All learning is based on purpose. This purpose is always connected with the use of instinctive power, with the use of the energy with which persons are endowed. This is why it is necessary that all school activities should be purposeful so that the learners will feel real urge for learning.
v. **Learning is intelligent:** When a learner learns unintelligently he is likely to forget it very soon as he does not assimilate and understand but simply commits it to memory by rote learning. This type of learning does not produce lasting knowledge.
vi. **Learning is active:** Learning does not take place without a purposeful self-activity. In every teaching-learning activity, the activity of the learner counts more than the activity of the teacher. The principle of learning by doing is the ideal principle for learning.
vii. **Learning is both individual and social**: Learning is more than an individual activity. It is also a social activity as the individual mind is affected by the group mind consciously and unconsciously as the individual is influenced by his friends, relatives, classmates, parents and significant others and learns their ideas and feelings. Social agencies like

the family, religious organisations and films also have tremendous influence on the learner.

viii. **Learning is the product of the environment**: The environment plays an important role in the growth and development of the individual. The environment should be healthy and rich in educative possibilities.

ix. **Learning affects the conduct of the learner:** There is a change in the mental structure of the learner after every experience which brings about a visible change in behaviour.

x. Some learning takes place through trial and error.

xi. **Learning depends upon insight:** Lasting learning depends upon insight. Insight is described as flash of understanding. When there is adequate understanding, lasting knowledge that can be applied in new situations has occurred (Basavanthappa, 2018).

The phenomenon of learning, which is the act of acquisition of further knowledge, skill and attitude, is fundamental to a person's development. An increment in learning is characterized by a corresponding modification of human behaviour. Conversely, no learning is said to have occurred if there is no behaviour modification. So learning is characterized as describable, observable and measurable (University of Waterloo, (2018).

2.1.2 Domains of Learning

Learning is an integral part of every individual's life. It aids growth and development and hence requires the need for both students and teachers to be committed to the process. It is further necessary to ensure that the delivery of learning combines generally different facets which have been identified to be the domains of learning. With the continually increasing need to ensure that students are taught with varying strategies and techniques, it is important for teachers to adopt a teaching strategy that combines various domains of learning to enable teaching and learning to be considered as effective.

There are three domains of learning:

i. Cognitive: This is concerned with information and knowledge, facts and figures, concepts and principles. Application of principles, analysis and synthesis, evaluation and decision making also belong to the cognitive domain of learning.

ii. Psychomotor domain: This comprises of motor or muscular activities guided by the human mind. Manipulative skills, neuromuscular coordination, operation of equipment are all examples of the type of learning under the psychomotor domain.

iii. Affective domain: This includes attitude, values and concern for others for example: maintenance of discipline, safety and readiness to work (Hoque, 2016).

2.1.3 Factors influencing Learning

The role of the student has become prominent in the classroom while the nurse educator or lecturer has become a facilitator. Although these changes have taken place, the unchanged area still exist which is the teachers' responsibility for consideration of factors that influence learning. The factors that influence learning are as follows:

Learning Experience and Behavioural Objectives

The learner must perceive the learning experience as relevant as the objective. Most single learning experience contributes to attainment of more than one objective. The learning experience will be positive if the teacher has prepared the students before stating the learning objective for the day by working collaboratively with the learners to identify their learning needs.

Teaching-Learning Environment

Learning is brought about by interaction between the individual and a stimulus or stimuli in an environment. This is known as perception. The more sensitive the individual perception is the more elements of experiences can be extracted from the environment. Each individual has different environments. The individual's internal environment is created by past experiences, self-concept, and involves acquired knowledge, attitudes and

skills. The influences from the learner's external environment includes the learner's peer group, family member, socio-economic status, community and school as well as work situations (Aaron, 2021).

In nursing education, an effective environment should be created in which the learner knows that people are highly valued than procedures. Any practice that contributes to the erosion of another person's self-image or self-esteem must be open to question and correction. A student who has a positive self-image will react differently to the same environment than the student whose self-image is negative. The nurse educator should anticipate situations of this type and structure the teaching-learning environment to provide opportunities to cope with students' individual differences. Easy interaction between the learners and ideas, subjects and patients changes the learning environment from one that is passive to one that is alive and dynamic. The nurse educator must be a good listener, imaginative, interested and flexible to assist individual student as a member of a group achieve their behavioural objectives in varied environments (Basavanthappa, 2018).

Motivation towards Objectives

This is the process of creating in an individual a need or a desire that promote action. It occurs when a learner is helped to develop an interest in a specific subject or delve deeper into a topic. Motivation can be promoted by convincing the learner of the value of the subject content and the importance of achieving the behavioural objectives. Motivation occurs when students and teachers participate jointly in planning the learning activities and the expected learning outcomes that will contribute to their behavioural objectives. The achievement of previous behavioural objectives and competencies also contribute to the students' feelings of accomplishment and supplies a strong motivational influence. When students are given a feedback on their performance, the students feel more secured and confident and studies with a positive attitude (Dorgu, 2015).

Individual Differences

In the learning process, mental responses vary with individuals. Educational background, church, business or other places and complexities of the environment influence individual

responses to learning. In addition, the same person may not respond the same way at all times because he may not always interrelate facts, emotions and opinions the same way. Learning experiences should be designed so that each student will have an opportunity to reach a specified or an acceptable level of mastery (Basavanthappa 2018).

Association

Association of new behaviours with previously learned behaviours is related to transfer of learning. If the original experience was positive or favourable, the transfer may occur including the attitude but if the original experience was negative or unfavourable, the student may transfer the attitude to the new learning situation but the transfer will be negative.

Active Participation and Practice

Learning is an activity that must be performed by the learner. The teachers' roles are to direct the students to systematically participate in the learning activities or experience. It is the teacher's responsibility to arrange the activities or subject content in the best possible sequence to increase the possibilities of learning taking place. In nursing education, the students must interact with the learning environment where nursing is actually practiced. This is essential for the students to develop positive, healthy attitudes. The nursing experience should be natural in an environment where positive relationship exists. Provision should be made for practice following initial learning period to bridge learning-practice gap and promote transfer of knowledge to new situations (Bhagat, Vyas, and Singh, 2015).

The Learning Preparation

Learners should always be prepared before the introduction of any new learning experience. The nurse educator should carry out pre assessment to assess what learners know about a particular topic as learning proceeds from known to unknown. This will enable the teacher plan for learners' individual needs so that her teaching will proceed faster and more efficiently.

Sequencing of Subject Content

In nursing education, learning materials should be sequenced from simple to the complex. This makes it more meaningful to the learner than unorganized material. The rate of learning expected is related to the complexity of the content and it is influenced by individual differences. Learning is favoured by the presentation of sequenced, short segments of subject content with opportunities for students' participation, practice and self-evaluation along the way (Reid-Brown, 2017).

2.2 Teaching Methods

Teaching method may be defined as plans and specific ways devised and employed for the realization of a goal. Teaching is a purposeful activity performed by the teacher for guiding, directing, and showing the right path to the learners in their pursuit for the realizations of the set teaching-learning objectives. Teaching strategies are the plans, means and specific way especially devised and employed by the teachers for guiding, directing and showing path to the learners for the realization of the set learning objectives (Basavanthappa, 2018).

Characteristics of teaching strategies

Strategies should aim at the following:

- Developing the desire to do work with the highest measure of efficiency of which one is capable
- Developing the learners' capacity for 'clear thinking'
- To expand the range of student's interests
- Providing opportunities to students to apply practically the knowledge that has been acquired by them
- Provide numerous opportunities of participation in freely accepted projects and activities in which discipline and co-operation are constantly in demand
- Quickening of interest and training in efficient techniques of learning
- To train the students in the 'art of study'. Learners should be trained in the use of reference material such as table of contents and index in books of intelligence.

- To be such as they balance the claims of individual work with co-operation and group work (Petro, 2017).

Usually strategies and methods of teaching are used interchangeably although they differ in some respect. According to Basavanthappa, (2018), "Methods refer to the formal structure of the sequence of acts commonly denoted by instruction. The term 'method' covers both strategy and tactics of teaching and includes the choice of what is to be taught. In other words, method is a wide term and it includes strategy. Strategies and methods of teaching have the same objectives, which are to bring about desirable change in the behavior of the learner.

2.2.1 Classification of teaching strategies

Teachers make use of different types of teaching strategies in different teaching-learning situation for the effective realization of their teaching objectives. These strategies may be broadly classified as autocratic and democratic teaching strategies. Autocratic teaching strategies are content centered and dominated by teacher whereas democratic teaching strategies are student centered and democratically organised.

Types of Teaching Strategies under Autocratic and Democratic Methods of Teaching

The teaching strategies that fall under autocratic method include; lecture strategy, demonstration, tutorial, narration teaching strategy, description, explanation, illustration, programmed instruction strategy and role-playing. While the teaching strategies that are democratic in nature are the group discussion strategy, question and answer, discovery or heuristic strategy, problem solving, project strategy, independent study, take home assignments, drill or practice strategy, execution strategy, use of audiovisuals in student centered teaching, brain storming and computer assisted instructions Halakeri and Karnataka, 2018). Nursing education of today involves both classroom lectures and other teaching methods which will expose the students to various experiences in the outside world. This will equip the nursing students with the necessary skills to effectively cope with the challenges of the current health care environment (Rae and O'Malley, 2017).

2.3 Traditional Didactic Lecture-Based Method of Teaching

Didactic teaching method takes place in a classroom setting teaching led by an instructor, in which learners are passive listeners as it does not interact with students; rather, it concentrates on providing the factual content of the topic (Mahajan and Kaushal, 2017). It is always called a lecture. In specialised colleges and universities, lecturing is one of the most common methods of presenting information to the people (Albaradie, 2018).

Lecture as a method and strategy is the oldest one that has been used by the teachers to teach almost all the subjects of the curriculum at all grade levels. It belongs to the category of autocratic strategy as the teacher here plays virtually the role of a monarch and autocratic controlling each and every function of the classroom teaching. In its simple meaning this strategy may be defined as a mode or planned scheme devised and employed by the teacher for presenting a segment or unit of the desired content material of a subject to a group of learners through lecturing (verbal communication of ideas) aiming to attain specific teaching-learning objectives related particularly to the cognitive and affective domains of the learner's behavior.

2.3.1 Traditional Didactic Lecture in Nursing Education

The traditional teaching method affords learners with the academic knowledge they need and is an effective technique used to educate learners who are unable to coordinate their studies and are dependent on teachers for instruction (Noel, Daniels and Martins, 2015). This is also used for teaching basic literacy skills. In a didactic lecture, a person who is knowledgeable in the sector performs oral presentation of details in a structured and coordinated manner fulfilling previously stated goals (Albaradie, 2018). One of the most widely discredited techniques of teaching is the traditional didactic lecture (Lochner, Wieser, Waldboth, and Misch-Kelling, 2016) especially in health related programmes. It has been revealed that lecturing positions learners to be in an inert role rather than a lively one, hampering knowledge acquisition education programmes, as well as for nursing education (Noel, Daniels and Martins, 2015). Lectures are notably counterproductive if skill implementation is included in the educational goals. Normally, lecture classes do not provide sufficient time to achieve deeper learning activities (Ma, Luo, Zhang, Wang, Liang, etc., 2018). This is especially the case when knowledge seekers are passive

receptors of huge amounts of information, leaving them with limited mental capacity to participate actively during knowledge acquisition (Xu, 2016). Students can accordingly defer their study period and use rote memorization to practice for examinations.

2.3.2 Advantages of Traditional Didactic Lecture-Based Method of Teaching

Lecture as teaching has the following credit points on its side: Lecture strategy provides an opportunity to the teacher for controlling and monitoring the teaching-learning activities of the classroom by remaining a central point of the teaching-learning process. He has simple opportunity and scope for keeping all the students of his class before his eyes thus enabling himself to manage and control the classroom activities according to his wishes. Lecture strategy can help to realise not only the lower cognitive objectives like information and development of understanding but also to attain higher cognitive objectives like development of power of analysis, synthesis, evaluation, reflective thinking etc. The lecture strategy provides the cheapest means for the formal education system. A lecturer with very limited resources at his command can teach a number of students at a time involving least financial commitment on the part of an institution (Basavanthappa, 2018).

Lecture strategy is a very flexible teaching strategy as it can help the teacher to plan and mould his teaching according to the needs of the subject matter, interests and levels of the students, time limit and teaching-learning environment available in a very short notice. Lecture strategy proves to be quite economical in terms of saving time and energy of the teacher. One can teach a large number of students at a time and cover a wide area of content material and so many other aspects of the curriculum in the limited time of the class period and days of the session. The lecture strategy may help in maintaining a proper channel of motivation, enthusiasm and interest in the classroom. While teacher may get reinforcement from the students when she finds that students are listening and interested in his communication, the students also get motivated and reinforced through the verbal and nonverbal behaviour of the teacher in the form of praise, gesture and posture, movement, will and sense of humor (Abdulbaki, Suhaimi, Alsaqqaf and Jawad, 2018). Lecture strategy helps in following logical sequence in teaching as facts and information

get pre-organised. One can proceed from ideas to ideas, concepts to concepts in a chained sequence by organizing the subject matter at his command. The lecture strategy may prove an ideal source of inspiration and personal touch and the lecturer may leave lasting impression on the listener not only through his inspired talk but his behavior and personality also communicates well for bringing changes in the affective behaviour of the students (Miller, McNear and Metz, 2013).

2.3.3 Shortcomings and Limitations of Didactic Lecture Method of Teaching

Lecture as a teaching strategy is attached and condemned on account of its following limitations and drawbacks: The lecture strategy centers around the content or subject matter. Presenting the subject matter is the main task and the teachers usually provide the crammed stock of information to the students without caring for the attainment of specific teaching-learning objectives. Lecture strategy pays little or no attention to the needs, interest and abilities of the students. The subject matter is more important than the students. With a sole purpose of finishing the course in time, the teacher pours the content material through uninteresting and lengthy verbal communication (Ma, et. al., 2018). Lecture strategy makes the teaching learning process totally a one sided affair as the teacher talks and student listen or are made to sit before the teacher with or without their attention and interest. In this way, this strategy leaves almost no scope for the activities or participation on the part of students. They usually remain silent spectators and passive listeners-ready to bear the consequences of a boring lecture. The lecture strategy in its present form has no place for any practical activity, observation, experimentation and demonstration, etc. Therefore, it is not suitable to teach so many subject areas that need practical understanding and application of the facts and principles as well as development of practical skills, and psychomotor abilities like the nursing profession (Lochner, Wieser, Waldboth, and Misch-Kelling, 2016).

Lecture strategy is a group strategy of verbal communication. There is no scope of meeting the requirements of individual learners in this type of teaching. It always leaves gaps in understanding. What a teacher says may not be conveyed or understood by the students in the required form. It may prove costly as the students may pick up incomplete

and wrong information or develop so many misconceptions about the content of the subject. Lecture strategy provides full freedom to the teachers to speak at their will. Some of the lecturers are in the habit of over-speaking and in many cease they are usually drifted away from the real teaching issues which may result into unnecessary wastage of the classroom time costing dearly to the students. Not all the teachers are good speakers. Some teachers also lack in preparation as well as depth and knowledge of the delivered lecture. Some are in the habit of providing very routine and crammed knowledge through their lecture providing no attraction to the students for listening to it. In this way, the class period becomes too tired, boring and uninteresting giving birth to so many disciplinary or behavioural problems and leading to develop a distaste and hatred towards the subject and the teacher (Ma, et al., 2018).

Lecture strategy is not all helpful in organizing the teaching learning act at the reflective level. We cannot expect the development of proper reasoning and thinking power of observation discrimination, creative thinking and problem solving behaviors, etc. with the use of this strategy. Even understanding objectives may also not be realized with the help of this strategy. It may thus meet the need of organizing teaching-learning on a very low level (Darling-Hammond, Flook, Cook-Harvey, Barron & Osher, 2020). With the shortcomings and limitations listed above for the lecture strategy, we should not presume that lecture strategy is quite absurd and we should not make of its use in out reaching. It is true that it may not be suitable for certain subjects and teaching-learning situations.

But on the other hand, it is also true that lecture method of teaching proves to be quite effective in many other situations like:

i. To introduce and explain new concepts,
ii. To build larger logical structures through smaller units of information,
iii. To provide further insight with the already presented concepts,
iv. To expand the knowledge and understanding span of the students,
v. To review and summarize the content material, etc.

However, the limitation of providing information or fulfilling limited cognitive objectives on the part of lecture strategy does not arise on account of the defects and drawbacks of this strategy. It is the result of the lack of proper subjective knowledge, understanding and required skills on the part of its users. It is necessary to improve the present state of affairs by taking care of the following things at the different stages of teaching-learning process (Basavanthappa, 2018).

2.3.4 Guidelines for Improvement in Didactic Lecture-Based Learning Strategy

Planning state: At this stage the users of lecture strategy need to care for the following:

1. The purpose or goal of the lecture strategy should be properly identified. The type of information knowledge, understanding or reflective thinking, etc. the educator intends to develop among the students should be very clear to the teacher before planning for the use of lecture strategy.
2. The nature of the learner along with their learning potential should be properly identified. It will definitely help the teacher in taking proper decision about the contents of the lecture as well as mode of its delivery.
3. The teacher should make effort to acquire sufficient mastery over the subject matter and contents going to be delivered in the classroom through the lecture. It will make the task easier by providing necessary confidence and understanding about the subject matter.
4. Consult useful reference books, current journals and books other than the prescribed textbooks for preparing the lecture notes. Try to give the students something extra and useful different from what is provided in their textbooks.
5. Plan and develop the lecture by identifying a few key concepts. Choose the appropriate language. Try to prepare notes for highlighting the key concepts, sub concepts or point to be classified during the lecture. Try to work out for the appropriate examples and illustration, etc., to be used for presenting the various concepts.
6. Have the total teaching-learning environment (the physical set up of the class, available resources, social and cultural environment of the students, etc.) available for the proper planning of the lecture.

7. There may be the need to apply various tactics and techniques like question-answer, demonstration, use of backboard, use of proper display material and audio-visual aids, etc. The teacher should try to have proper preparation for their effective use at the right time.
8. Try to think properly for the measures to employ for creating and maintaining interest and enthusiasm in the lecture (Abdulbaki, et. al, 2018)

Presentation state: This stage requires the following considerations:

1. The teacher should try to motivate the students for attending the lecture not only in the beginning but to maintain it throughout. It needs careful attention and deliberate efforts on the part of a teacher. The lecture should not loose strings at any time. The students should never be allowed to feel bored or fatigued. They should also neither be frustrated not be left unchallenged.
2. Always show enthusiasm for the teaching and keeping your students fresh and enthusiastic about the lecture.
3. See that the subject matter, style and language of the lecture are quite communicable from the angle of the students. What is interesting and suitable to the students from the angle of the mental level and previously acquired knowledge in the subject should always be kept in mind.
4. Mind that the success of lecture strategy depends on the effectiveness of the teacher's communication skill verbal or nonverbal. For this purpose the teacher should take special care of the following:
    - Try to exercise reasonable control over his voice. It should neither be too low or too shouting. Each and every students of the class should be able to listen and hear the lecture. If needed, the help of the audio devices like microphone can be used to ensure an audible lecture.
    - Try to introduce humor for reinforcing ideas and concepts by providing interesting examples and illustrations
    - Try to make use of the skill of stimulus variation by introducing the elements like pausing, changing voice tone, using gesture and physical movements and adopting multimedia approach.

5. Try to care for the organization and sequencing of the presented subject matter. Always try to provide it in meaningful small units or steps focusing on a single concept or line of thought.
6. Try to make the lecture as interesting and understandable to the students as possible. Other strategies, tactics and techniques like narration, exposition, description, explanation, illustration, demonstration, making of audio-visual aids, can be used for this purpose.
7. In order to compensate the limitation of the lecture as a teaching strategy, it is better not to confine to mere lecturing but to use this strategy with suitable variations in the shape of lecture-cum-demonstration strategy, lecture-cum-blackboard strategy and lecture-cum-question-cum answer strategy.
8. The teacher should avoid backing the class even at the occasions like writing on the blackboard, showing maps and charts, etc. Try to attend to every student in the class by having his eyes and gestures on them.
9. Do not waste time in irrelevant facts and unrequired detailed explanations. Be relevant, exact and to the point. However, do not miss any important idea or thing by making unusual hurry.
10. Do not turn the lecture into mere paper reading or notes dictating task. It does not only expose the weakness of a teacher but also proves disinteresting to the students.
11. Do not make your teaching through lecturing as a one-sided affair. Always encourage and involve the students for participating actively in the process of teaching-learning.
12. Try to summarize the key points of the presented material at the end of the lecture. It can be done orally as well as in the form of writing on the blackboard, using overhead projector, display charts or making the students summarize them (Lochnar and Gijselaers, 2010)

Evaluation stage: - According to Basavanthappa, (2018), this stage comes not necessarily at the end of the lesson. A teacher may evaluate the outcomes of his lecturing any time during his lecture as and when he feels the need for doing so. It is quite essential for monitoring the progress of his teaching and exercising desirable control over the learning

of his students. For getting desired success in this task, the teacher must try to pay attention over the following:

1. He/she must always keep in mind the goals and objectives of his/her teaching and evaluate his/her teaching outcomes in the light of the realization of the set objectives.
2. At the end of the coverage of a particular unit or segment of the content and proceeding to the next point in his/her lecture he must try to evaluate the students understanding for the presented material.
3. He must try to monitor, control and evaluate the progress of his/her teaching by maintaining a proper flow of question-answer.
4. The evaluation task, at the end of the lesson or in mid-course, may be performed either orally or by presenting response sheet, questionnaire or a proforma to be filled in by the students.
5. Besides evaluation of the students learning, attempts should also be made to assess the effectiveness of the lecture strategy by seeking opinion of the students through questionnaire or rating scale. This task can also be entrusted to any fellow teacher who may sit in the class and give his opinion about the strong and weak points of the lecture. A teacher himself may have self-evaluation for evaluating the effectiveness of his teaching through adopting of lecture strategy. The results of such evaluation should be properly utilized for providing appropriate feedback to improve the progress and products of the lecturing as a teaching strategy.

In this way if we keep up in mind the above mentioned suggestion, put for the improvement of the lecture strategy at the different stages of teaching, educators can surely improve the effectiveness of lecturing as a teaching strategy (Abdulbaki, et. al., 2018).

2.4 Self-Directed Learning

Education at any strata has customarily been built on future projections, which was unrealistic in a slowly changing world. Educators in today's world are grooming students for a future which cannot be predicted, and independent learning is now a mandatory skill of the twenty first century student (Gugliemino, 2014). To expand the impact of learning

in nursing programmes, interactive lessons appear to be a vital and viable teaching method (Sajeevan and Jose 2018). With an emphasis on students taking the initiative in learning, new knowledge seeking techniques like self-directed learning (SDL) have emerged in nursing curricula over the past few decades (Scott, 2017). Self-Directed Learning is the process of knowledge acquisition through problem solving, work experience and the promotion of professional practice (Örs, 2018).

In recent times, health training programmes, nursing inclusive are undergoing new modifications in many parts of the world (Salmond and Echevarria, 2017), this means that there is need to concentrate more on student-centered learning, which contrasts traditional didactic lecture (Goodman, Barker and Cookie, 2018) so as to make nurses competent enough to render the expected quality nursing care. One key quality of a SDL learner is the ability to learn independently (Rana, Ardichvili, and Poesello, 2016). Nasri, (2017) supports this point by noting that with advancements in age and maturity the capacity to become self-reliant when seeking knowledge is attained naturally. Thus learners are able to employ past experiences to identify their learning needs, demonstrate willingness to acquire knowledge, learn and organise learning in relation to real life problems. This progressively increases till adulthood. Adult learners are perceived as being self-directed; hence do not depend on instructions from teachers.

The autonomous learning, knowledge seeking process (SDL) can be traced to adult education as a discipline (Sawatsky, Ratelle, Bonnes, Egginton and Beckman, 2017). The literature study has identified some related terms as listed: Self-regulated and self-structured learning, as well as, self-tutoring (Nasir 2017). The benefits and results of self-directed learning is gaining grounds, as school and corporate settings highlights its importance and worth for meeting job demand in the 21st Century (Salmond and Echevarria, 2017).

Developing knowledge seekers so they can learn on their own is a major task of tutors. (Shirazi et.al. 2017). Adult education experts view self-directed learning (SDL) from three perspectives: motivation, metacognition, and self-regulation (Cosnefroy and Carré,

2014). Learners appraised to have high SDL attributes appear to be vibrant knowledge seekers who are always willing to learn and make use of the knowledge acquired to resolve real-life problems. They are self-reliant learners and are able to structure how they acquire knowledge (Cosnefroy and Carré, 2014).

Literature shows that independent learning is a correlate of students' academic success and excellence in conventional learning situations (Saeid and Eslaminejad, 2017). A direct relationship between SDL and excellence in a conventional learning environment was also established by Darmayanti (1994). The same submission was advanced on SDL by (Hsu and Shiue, 2005), who demonstrated that SDL is a key determinant which influenced the knowledge seekers' success in the conventional learning context.

In a broad sense, SDL is a method in which learners are in control of the learning procedure whether support is received from others or not. They are able to recognize their knowledge seeking prerequisites, fashion out the knowledge acquisition objectives, take stock of assets available for learning, chose and implement knowledge acqusition schemes, as wells as appraise the learning outcomes (Poathen, Vadakkedom and Geeta, 2017). Contrary to Nasir, (2017), and other authors whose descriptions of SDL mostly imply learning in Isolation, Knowles, (1975) describes SDL as taking place in association with different helpers – ranging from social workers, coaches, professors, and colleagues. This category of self-directed allies relates to greater mutual understanding (Poathen, Vadakkedom and Geeta, 2017).

With all these definitions, it is opined that SDL learners are their own learning managers (Cosnefroy and Carré, 2014). It is an integration of self-management and self-monitoring, which recognises the roles played by enthusiasm and the decision to start and sustain the effort of learners (Basavanthappa, 2018). Learning is directed by teachers by ensuring visibility, and self-directed learning advances domain-specific acquaintance and the ability to impart theoretical knowledge to new situations (Carpenito, 2012).

Two dimensions are considered in the various definitions as SDL can be classified into two categories. In the first category the onus is on the learner to decipher the learning requirements; planning, implementing and appraising the knowledge seeking procedures and outcomes (Cosnefroy and Carré, 2017). In the second one, a tutor or resource

facilitates the knowledge acquisition process (Poathen, Vadakkedom and Geeta, 2017). A more illuminating perspective of the SDL was presented by Candy (1991): There is a reciprocal relationship between SDL and lifelong education. SDL provides a major avenue for adults to be involved in knowledge acquisition throughout their lives, while supplementing learning received from formal settings. Another key purpose of continuous learning or education is to enable people to gain the prerequisite expertise and flair to pursue self-education after formal learning (Dapko, 2016).

2.4.1 History of Self-Directed Learning

The account of self-directed learning (SDL) dates back to the era of the notable Greek theorists, such as Socrates, Plato, and Aristotle, as documented by Hiemstra, (1994). Alexander the Great, Caesar, and Descates practiced SDL too. The nonexistence of formal institutions of learning in America, during the early 18th Century led to so many people towing the SDL line. Craik, (1840), in the United States recognized the scholarly efforts of many people who undertook the task to understand and practiced SDL, indicating that it took place over 150 years ago. This was followed by a publication in Great Britain, which promoted the importance attributed to personal development by Smiles, (1895).

Another milestone accomplishment was by Houle in 1961: He undertook an interview of twenty matured learners and categorized them into three divisions on the basis of exposure to learning as follows: (a) Goal oriented- The purpose for involvement in learning is channeled towards a specific end, (b) Activity oriented – This category of participants are involved for networking purposes or fellowship reasons, (c) Learning oriented – knowledge acquisition is a perceived end in itself for this group, which corresponds with the narrative on the self-reliant learner that was earlier identified. Knowles, in 1975, eventually published a book on SDL, which provided fundamental definitions and assumptions that formed the basis for further research in the area. Knowles posited that, (a) The presumption that there is growth in human capacity and thus the need for learning to be self-directing; (b)The student's experiences provide a robust resource base for the learning process (c) The process enables people to acquire skills and knowledge required to undertake the life's evolving tasks. (d) Naturally adults are oriented towards task or problem-centered learning; motivational factors like self-worth and interest, life goal, the

prestige of success motivate SDL learners. A doctoral student mentored by Houle's – Tough (Canadian researcher) in 1979 made the initial attempt to comprehend individuals who were self-reliant learners. His dissertation, which bordered on analyzing self-directed teachings, resulted in publication titled 'The Adult's Learning Projects'.

The research efforts of Spear and Mocker's (1984), underscored the importance of understanding the environmental situation of the learner for promoting of the autonomous knowledge seeking strategy. Long and colleagues (1987) achieved a major milestone in the development of SDL by establishing the International Symposium held annually on independent Learning which gave birth to numerous publications, research projects, and stimulated the formulation of theories by researchers all over the world. Guglielmino, in 1997, developed the Self-Directed Learning Readiness Scale (SDLRS), which subsequent researchers employed to measure self-directed learning readiness or to make comparison between various characteristics and aspects of SDL.

2.4.2 Process of Self-Directed Learning (SDL)

Tough's thirteen steps was adopted by Merriam and Caffarella (1991) to describe the SDL process. It is centered on making key decisions on what, where, and how to learn. They include:

- Taking a decision on the type of knowledge and skills to acquire which depend on identified knowledge deficit.
- Choosing detailed undertakings, techniques, materials, or equipment for learning based on the facilities available or within reach.
- Taking a decision on where to acquire knowledge.
- Setting realistic long and short term targets within specific timelines which will guide the decision on when to begin a learning episode.
- Determining when learning should start.
- Determining the speed of progression during a learning experience.

- Appraising the degree or level of knowledge of the learner and skill because in learning, the individual moves from known to unknown as s/he progresses in acquiring the desired skill and proficiency.
- Identifying issues that are militating against the SDL process or discovery of the efficient aspect of the current processes.
- Procuring the desired resources and attaining the desired place or resource.
- Designing an enabling learning ambience by putting in place certain physical conditions to facilitate learning.
- Saving or securing the financial resources to procure learning materials and human resources.
- Creating time to learn and,
- Making strategic move to escalate the inspiration for certain learning episodes (Petro, 2017).

Adults are presumed to possess a varied array of capabilities for organising and directing their learning activities (Palis and Quiros, 2014).

The five-step prototype of independent learning by Knowles includes:
Diagnosing learning needs, (2) Formulating learning goals, (3) Identifying human and material resources for learning, (4) Choosing and implementing appropriate learning strategy and, (5) Evaluating learning outcome (Merriam and Caffarella, 1991; Esthermsmth, 2017). A deeper understanding and tilt in the perception of how circumstances trigger off an event for learning and alters how learners approach the SDL process, was presented by Spear and Mocker (1984); this situation offers an opportunity new skills acquisition. The organisation, technique, materials, and the learning conditions are guided by the environment as the sequence of learning progresses. Thus the conditions generated in one episode determine logical step to be taken in the circumstances that emerge in the new episode (Mahmood and Shah, 2013).

2.4.3 Training the Self-Directed Learner

In consideration of adult learners who wish to undertake SDL, Moore (2006) and TEAL fact sheet (2018) document a process for educational institution to adapt SDL in order to

motivate students to learn independently. Similarly, Knowles writing on andragogy, posited that SDL for adults should follow the under listed:

- The need to create a learning ambience where the learner is recognised, appreciated and strengthened (Nasri, 2017).
- In prioritising the identification of learning needs, the learner's need must be identified.
- Learners should be carried along and involved in putting together a personal programme.
- The teacher plays the role of a resource person, guiding the procedures, participating as a co- inquirer, and allowing the learner to participate freely.
- The tutor assists the knowledge seeker in the process of self-appraisal.

Great emphasis should be placed on practices that expose the experience of mature knowledge seekers (TEAL Fact Sheet, 2018).

A summary of the works of other researchers on how experienced tutors can enable SDL was presented by Lowry (2006) as follows:

- Assist the learner to determine the beginning of a learning session, as well as identify the right method of assessment and reporting.
- Motivate seasoned learners to contextualize knowledge and fact, to conceptualize value structures as social constructs, and appreciate that they can act individually or collectively to transform it.
- Engaging the knowledge seekers to evolve objectives, schemes, and assessment as benchmarks for negotiating a learning agreement.
- Invest in improving the education experience rather than teaching (Bhagat, Vyas and Singh, 2015).
- Guide learners to develop techniques essential to ascertain the required objectives and, encourage learners to set achievable objectives, which can be accomplished through myriad approaches, and possibilities for obtaining evidence of successful performance_(McCombs, 2018). TEAL Fact Sheet, (2018) indicated that about 70% of learning of adults is based on the SDL approach.

A self-directed learning descriptive model of lifelong learning centered mainly on establishing controls for making decisions on the objectives and means of learning were developed by Mocker and Spear (1982). The model is a 2x2-matrix of learner and institutions; which states that SDL learning process occurs when learners, not the institutions provide or take control of the learning objectives, resources or facilities for acquiring knowledge.

The following situations occupy the other cells of the matrix:

- Formal learning – The objectives and knowledge acquisition approach is determined by the academic institutions, and not the knowledge seeker (learners);
- Non-formal learning – In this type of learning the knowledge seekers determine the objectives and structure of the environment and learning facilities is provided by the academic institutions ; and
- Informal learning – The institutions usually a vocational institute sets the goals or the objectives and knowledge seekers take charge of the facilities or resources.

Notwithstanding the learning approach (SDL or not), the knowledge to be acquired or the learning approach adopted are not affected. Instead SDL is hinged on learners taking charge of the learning process, taking decisions on the knowledge to be acquired, who should learn it, procedures and assets to be adopted, and how to appraise the results of the knowledge seeking strategy. So long as the knowledge seekers take decision on their own, the learning is generally adjudged to be self-directed (Hawkins, 2018).

In practical terms, given the frequent fluctuations in institutional standards, the degree to which SDL can be accomplished is limited.

Walther, (2018) pointed out that when choosing among objectives, it is practically impossible for choices not to be influenced because all the conditions are already known to the learner. Hence Mocker and Spear's model is viewed as a continuum rather than as a matrix. While self-structured learning occurs in libraries, other knowledge seekers are involved in a lot of discussion and interactions with professionals and colleagues than what is available in the classroom environment (Yerrabati, 2017). According to (Moen, 2015), the types of resources available for SDL include print and electronic materials;

professional interviews, telephone conversation, or personal communication; cultural institutions such as museums, zoos, and associations of all.

Generally learners embrace SDL to gain new skills, knowledge, and attitudes that are geared towards boosting performance at work, or to improve family life and health, enjoy the arts and physical recreation, participate in a hobby, or simply increase their intellectual capital (Boyer, Edmondson, Artis, and Fleming, 2014). Adult educators submitted that lack of independence, confidence, and resources are reasons why some adults are incapable of engaging in SDL. Thus, some adults would rather not take the SDL option, and peradventure they opt to practice SDL, they still augment it with more formal educational experiences such as teacher-directed courses (Van Rensburg and Botma, 2015).

2.4.4 Characteristics of a Self-Directed Learner

A person can be said to be an adult when he or she is able to fulfill culturally assigned social responsibilities. A person is considered to be an adult so long as he or she is in charge or accountable for his or her life. Based on the above definitions, an adult learner can be said to be an individual who undertakes a programme in a given period, while spending time on other pursuits (Topham, 2015). An adult learner is a motivated person with an ambition to further his or her education after work hours for certification for a programme (Adcock, 2017) after coming to terms with the significance of the programme.

The self-directed learner has many, varied and interrelated characteristics, they are:

- **Initiative**

  Employing initiative is the central concept of SDL. Successful self-directed learners often make the move to learn once they have identified a knowledge deficit (Poathen, Vadakkedom and Geeta, 2017).

  Independence

  In the SDL procedure, knowledge seekers are adjudged as independent: identify knowledge seeking needs, assessing plan, implement, and appraise their learning activities. They are independent; effectively cultivating their networks to learn without help throughout their lifetime.

Persistency

Learning involves the investment of huge amount of time, requiring repetition and practice. Successful self-directed learners should be tenacious seekers of knowledge (Hur and Yeol, 2015).

Responsibility

The independent knowledge seeker admits and takes responsibility for learning and learning what is useful (Toit-Brits and Zyl, 2017).

Viewing problems as challenges not obstacles

A proven independent learner accepts a progressive mentality and is not easily disheartened when the going gets tough (self-determination) (Toit-Brits and Zyl, 2017).

Self-discipline

Even when learning is fun, it frequently demands that the learner be discipline. The self-directed learner can exercise self-control and maintain discipline when it comes to learning (Soliman and Al-Sheikh, 2015).

Curious

Established independent learners have an inquisitive mind and can question situations (Petro, 2017).

Desire for a change in behaviour

The self-directed learner is naturally enthused. He or she is always willing to learn and sees knowledge seeking as an optimistic approach to achieving a change in behavior (Hur and Yeol, 2015).

Self-confidence

Effective autonomous knowledge seekers exhibit a high level of confidence; they believe individuals are capable of performing in a specific way to achieve set goals (Toit-Brits and Zyl, 2017).

Organizing time and setting appropriate pace for learning

Self-directed learners are able to pinpoint their needs when acquiring knowledge, evolve personal knowledge acquisition points, manage the duration and learning activities, and attend to comments and criticism to improve their work. They do not try to do so much within a limited time (Soliman and Al-Sheikh, 2015).

Developing a timeline

Organising the learning structure and setting the pace helps to ultimately reach the learning endpoint or timeline. The independent knowledge seeker recognises and practices this (Gugliemino, 2014; Soliman and Al-Sheikh, 2015).

Desire for learning

Self-directed learners are highly enthused to acqiure knowledge (Hur and Yeol, 2015).

Problem-solving ability

To overcome the complexities associated with the knowledge acquisition process, independent knowledge seekers adapt prevailing learning materials and realistic schemes for learning results (Carpenito, 2012).

The characteristics in the above discussion seem to separate independent knowledge seekers from others. Nonetheless, as a self-reliant knowledge seeker structure their own learning, they still have to mingle with their colleagues to rub minds and share valued data or evidence (Poathen et. al., 2017). The health care environment within which nurses operate is complex; where social, rapid scientific and technological advancement in health care presents them with a lot of challenges (Salmond and Echevarria, 2017). This means that nurses need to keep engaging in professional education to continue the provision of safe and quality health care also, adapt and respond positively to these challenges (Premkumar et.al., 2018). In response to the need for lifelong learning for professional nurses, it is important that the educational programmes designed for preparing nurses to become registered, should ensure that learning are self-directed (Soliman and Al-Sheikh, 2015). Educating nurses is still dominated by traditional didactic methods of teaching. Consequently, this approach is not in tune with present realities, especially as more attention is being paid to adult education, including SDL, (Sharma, 2017). Traditionally the teacher centered lecture directed model, in which the tutor is the source or originator of information, and the student nurses seem to be latent knowledge seekers, has been adopted by educators (Soper, 2017). Students benefit from this process through the acquisition of the ability to decipher knowledge, while the nurse instructors provide support to the nurses during the acquisition of these skills (Premkumar et al., 2018). The

implication of this is that nurses who are unsuccessful as independent knowledge seekers, may not have the necessary abilities required to survive in the modern health sector (Salmond and Echevarria, 2017). Also nurses who are unsuccessful in directing their knowledge acquisition process may not possess the skills required to cope with the ups and downs and challenges in the modern health sector (Salmond and Echevarria, 2017). Therefore educators are meant to spur knowledge seekers to develop the skills required for the autonomous knowledge acquisition process, but for this to be possible; nurse educators need to be acquainted with the concept of SDL and its use in nursing education (Shirazi, et al., 2017).

Self-direction in learning exists within a range and it is in every one to some extent, and learners differ in their preparedness to learn through SDL (Shaikh, 2013). According to Sharma (2017), independent learning occurs in diverse situations, from the usual classroom setting to self-structured and self-conducted learning projects. Even though certain learning situations lend themselves easily to self-direction in learning than others, what determines autonomous knowledge seeking are personal attributes of the knowledge seekers which include attitudes, principles, and aptitudes (Shirazi et.al. 2017). The self-directed learner determines the learning goals, accomplishments, materials, primacies, and amount of energy required more than the other directed learner (Pilling-Cormick and Garrison, 2007).

Some persons will surmount all difficulties to progress with their self-directed learning, while others need support to accept the obligation to develop the abilities and attitudes for lifelong learning (Gisela, Rensburg and Botma, 2015). However, to successfully perform in an unpredictable and changing world, the learners involvement in lifelong learning and relearning must be sustained, and presently educational institutions are not designed to deliver this type of service (Shirazi, et.al., 2017). Therefore, it is the responsibility of professionals in the field of nursing education and human resource programme development to prioritize the acquisition of abilities required to support self- directed, lifelong learning (Guglielmino 2014; Sharma, 2017). Yew and Goh, (2016) were able to link self-directed learning by students and problem-based approach to acquiring

knowledge. To develop abilities and confidence to learn independently, it is important to use the problem-based approach when seeking knowledge (Atta and Alghamdi, 2018).

2. 5 Self-Directed Learning Readiness Level

This is the extent to which the student has the requisite qualities, behavior, skills and personal characteristics to learn independently (Senyuva and Kaya, 2014). Learners with a good degree of preparedness for independent learning believe in themselves (Örs, 2018).They have a strong ability to learn on their own with a little anxiety and are able to behave consistently throughout the learning process (Sarmasoglu, 2009). Without the aid of others, they are mindful of their duty to learn and act independently (Örs, 2018). Knowles (1990) stated that there is a natural movement towards self-direction as the individual matures. Sharan (2017) agreed, that self-direction is a transferable individual quality, similar to maturity which can be applied to innovative situations when the need arises. Studies that explored self-directed learning as an individual quality established that knowledge seekers become more autonomous in the learning process as they become more mature (Merriam, Caffarella, and Baumgartner, 2007). Nevertheless, Grow (1994) opines that self-direction can be developed over time. Knowing and comprehending the knowledge acquisition procedure and how leaners guide their own learning and the preparedness to learn independently, increases the capacity of learners to acquire more knowledge with increased confidence in fresh, unexpected and innovative circumstances (Sharan, 2017). This is the degree to which the student exhibits the requisite qualities, behavior and attributes of an independent learner (Senyuva and Kaya, 2014).

Literature abounds with information on independent learning of nurses in training and students of other occupations, but non from Nigeria nursing students were found reported. El-Gilany et. al, (2012) carried out a research on independent learning preparedness and patterns amongst student nurses in Saudi Arabia. The study found that the total mean score of SDLR was a little higher (159.6) than results obtained from studies conducted in other countries, like china - 154.72 for undergraduate student nurses (Yuan, Williams, Fang and Pang, 2012) and 150.55 for same category nursing students in Australia (Fisher and King 2010). Other research findings include the fact that students ' autonomous learning preparedness and the positive attitude of the learners to student-centered

learning are the main issues that affect student comportment (Lestari and Widjajakusumah, 2009).

In addition to the above mentioned factors, an inspiring school environment provokes the students to learn. A favorable school environment for self-development includes: the physical surroundings of the school, the classroom layout, training materials, equipment, as well as expert tutors. The passion of a student to learn has effects on the educational outcomes (Okon and Archibong, 2015) However, the absence of learning technologies in academic institutions is a major challenge. Adeyemi and Olaleye (2010), observed that ICT tools like computer, internets and telecommunication infrastructure that can promote knowledge acquisition are not available for teaching, learning and research in many academic settings in Nigeria.

Noteworthy is the fact that not all schools in the country have the chance to train learners on how to use learning technologies in secondary schools supported by school Net Nigeria. The results from their study revealed the absence of information, communication and technology in many schools in Ekiti State. This applies to other public secondary schools in Western Nigeria. They also outlined the constraints of the application of ICT in classroom settings in Ekiti to include insufficient facilities, occasional interruption of electricity supply as well as poorly equipped classrooms with ICT devices, lack of expertise in the use of ICT, lack of interest among many staff members in the adoption and use of computers and other modern IT equipment for school management and teaching. It has been found commonly in the western part of Nigeria that most private secondary schools are better equipped than public secondary schools and give their students technology basics lectures to improve their understanding and use of ICT. The basic computer skills will go a long way when encouraging independent learning as a person increase in age and experience.

2.5.1 Instruments to Assess Self Directed Learning Readines

The Self-Directed Learning Readiness Scale (Guglielmino, 1978) and Oddi's Continuing Learning Inventory (Oddi, 1986) are two main tools for assessing self-directed learning

readiness. These tools were adapted to assess the learner's preparedness to participate in the independent acquisition of knowledge. Fisher, King, and Tague (2001) produced a recent one to test the SDL preparedness of nurses.

A scale tagged Self-Directed Learning Readiness Scale (SDLRS), which Guglielmino (1977) designed, was adapted and modified for this study. The SDLRS is a 58-point Likert-type instrument designed to test the readiness for self-directed learning of the leaners (Guglielmino, 2008). Among the three existing instruments, this instrument is chosen because it is built in two measures. At first, fourteen self-directed learning experts named and value certain attributes that an independent knowledge seeker must have; which are behaviors, abilities and personality traits. The SDLRS instrument was designed using attributes that were rated as good or better. The instrument was adapted to elicit information from 307 people in three places namely, Canada Georgia and Vermont. A reliability coefficient of 0.87 was calculated (Guglielmino, 1978).

According to Guglielmino and Hillard, (2007), most studies on populations published over two decades ago gave reliability statistics varying from 0.72 to 0.92. A test-retest reliability coefficient of 0.82 and 0.79 respectively was documented by Finestone (1984) and Wiley (1981). Further, reliability coefficients of 0.94, with a population of 3,151 participants from US and Canada were arrived at using a split-half Pearson product moment comparison with a Spearman-Brown correlation by Guglielmino and Guglielmino, 1991. A wide majority of studies are in support of the reliability and validity of the tool, (Delahaye and Smith, 1995; Finestone, 1984; Graeve, 1987; Guglielmino, 1997; Long and Agyekum, 1984; McCune and Guglielmino, 1991; McCune, Guglielmino, and Garcia, 1990; Russell, 1988). The Self-Directed Learning Readiness Scale (SDLRS) produced by Guglielmino in 1977 is a popular tool in the study of SDL (Merriam, Caffarella, and Baumgartner, 2007). Eight factors were discovered through factorial analysis of the data using application software which include:

Open mindedness to learning; initiative and autonomy in learning; self-concept as an efficient knowledge seeker; taking charge of the learning obligation; passion to acquire knowledge; genuity; future orientation; ability to make use of essential study skills and

solve problems. Brocket (1985a) explained that the intent of the SDLRS as an instrument is to assess the individuals appraisal of the skills they possess and their attitudes that are often connected with the preparedness to embrak on self-directed learning (Premkumar et.al., 2018). The preparedness for self-directed education is a potential for people to improve (Örs, 2018). Opportunities should be afforded to persons who score low on SDLRS to become efficient self-directed learners, (Guglielmino, 2014).

2.5.2 Interpreting the *SDLRS-A/LPA* Score

A person's readiness for self-directed learning (SD) can be measured using the SDL readiness score. According to findings from research SDL readiness levels can be promoted via educational initiatives.

According to (Guglielmino, 2014), the *SDLRS-A/LPA* Score is interpreted as follows: Low (58-118), below average (189-203), average (204-218), above average (219 -232) and high (233 -290).

Knowledge seekers who have prior exposure to other types of special instruction modes regularly tend to have low readiness (Gugliemino, 2014; Örs, 2018). According to recent research, country culture may affect scores (Premkumar, 2018). The most essential thing about the score is that it can be upgraded. Through practice, people who have less than average SDL readiness scores can upgrade their skills (Sharan, 2017).

Usually, people with high SDLR scores are often effective in detecting their learning requirements; plan knowledge acquisition tasks and execute them.

In more independent learning environments, people with average SDLRS scores are likely to succeed but may need support in the scheduling, as well as implementing skill acquisition assignments. Typically, people with SDLRS scores below average are more disposed to planned instruction mode in the form of lectures in classroom settings (Gugliemino, 2014).

Guglielmino (2014) and (Cadorin, Bressan and Palese, 2017) termed a self-directed knowledge seeker as someone with high creativity, who is self-reliant, and steadfast in acquiring new skills. He or she takes control of the knowledge seeking process and

considers difficulties as challenges and not difficulties; self-discipline, inquisitiveness; a determination to learn, manage and set the learning pace within specific timeline, establish a work plan for accomplishing learning goals; enjoys learning and is focused and goal-oriented. Explaining how a self-directed learner will participate in a learning environment, Blazar and Kraft, (2018) noted that while some learning situations promote self-direction in learning than others, ultimately the peculiarity of the learner determines the outcome of self-directed learning.

More often the self-directed learner determines or fashions his or her intentions, actions, learning materials, main concerns, and time expended on learning than other category of learners (Örs, 2018). Guglielmino (2014) and (Cadorin, Bressan and Palese, 2017) described an independent knowledge seeker as a person who exhibits high creativity, self-reliance, and persistence in knowledge acqusition; accepts responsibility for his or her own learning and sees difficulties as challenges and not obstacles; demonstrates self-discipline and high degree of inquisitiveness; a great aspiration for acquisition of basic study skills, good time management ability, setting feasible learning pace, establish a practical plan for accomplishing work; passionate about learning, and with propensity for achieving set goals.

2.5.3 Self-Directed Learning Strategies

Learning strategies are the type of activities by which an educator delivers his / her subject matter to the learners based on certain predetermined educational goals to facilitate student learning (Dorgu, 2015). Different instruction modes are adopted when transferring knowledge to students and the value of the outcomes accomplished depends significantly on learners ' learning activities. Such learning approaches can be widely categorised into self-regulated approaches where students conduct most of the learning task on their own and externally controlled strategies in which students let teachers or books to regulate their learning process, and lack of regulation if students are not in control of their learning process and the support provided by teachers and learning environment are often inadequate (Bhagat, Vyas and Singh, 2015). A learning strategy is always devised and employed in the light of the needs, interest and abilities of the learners, the facilities and the learning environment available to the learners for carrying out his/her efforts for

learning and the prefixed learning objectives which makes the central point and the goal of the teacher (Dorgu, 2015). Many existing instructional methods for self-directed learning have not been designed specifically for independent learning, but can be modified to promote self-directed learning (Reid-Brown, 2017). Educators should choose the most appropriate educational strategies to achieve a specific educational goal (Dorgu, 2015). From this viewpoint, instructional techniques are tools available to educators in planning and promoting learning. Below are some teaching strategies that have been used successfully in the traditional classroom and can also be modified to facilitate self-directed learning.

2.5.4 Self-directed Learning Approaches

Typically, teachers in nursing schools depend on a tutor-focused lecture based approach. With this approach the tutor is the content expert and the nursing students are inert knowledge seekers. Nevertheless, nursing students as adult learners need some control over the process (Shirazi et.al., 2017).

A set of techniques to allow learners control teaching are as follows:

A peer support group should be promptly set up: Self-directed learners learn from their peers, provide facts on concepts, inspire innovative concepts and adequately allocate learning assets (Nasri, 2017).

Ascertain the needs and interests of the student in the course: This should be done by dialogue. Involve learners in conversations to change priorities and objectives based on these identified needs and interests.

The goals and objectives need to be reviewed periodically. It is important to:

- Request for collaborative approach to learning and development of reflection and discussion.
- Call for discussions relating to the activity's quality, sequence, and pace.
- Enabling access to latest learning resources that reflect a wide range of views from authors irrespective of the diverse ethnic backgrounds and

- Recognise gender of the learners and recognize the cumulative adult experiences as useful learning resources.

This can only be done by collaboration, as we only find out what they have to offer by letting the students speak. Due to the enormous number of variables, there is no general theory of adult education. It is unique for every person, and some of the factors that make each individual special are cognitive styles, learning styles, physiology culture and personality. However, the facilitator would benefit a lot if he is willing to listen to the learners, in conjunction with his knowledge (Petro, 2017).

2.5.5 Self-Directed Learning Skills for the Learner

Learning to read is a fundamental skill. Self-directed learning starts with the knowledge seeker becoming aware of a gap in knowledge and a need for learning. A learner can regulate how, what and when he wants to learn through autonomous learning. The following skills help the person to be self-reliant when it comes to learning. The capacity of an autonomous learner must be to:-Question, investigate and deal with the problems (Ayyildiz and Tarhan, 2015). Accept the views of others scan data and easily select appropriate resources (Petro, 2017) using self-observation and input from others to obtain his performance data (Nasri, 2017). The self-directed learner should be able to assess his actual performance by using this information, setting goals to enhance his personal performance, observe and model the success of others to improve himself. He needs to make a firm commitment to continue to work towards his targets, moving through the entire learning process, encouraging himself constantly (Ayyildiz and Tarhan, 2015). It is important for independent knowledge seeker to recognise those abilities which he feels comfortable with and also to identify the ones he needs to improve (Nasri, 2017). He must consider and plan how to focus on and develop the skills he has detected. Then try to be self-directed consciously (Ayyildiz and Tarhan, 2015)

2.5.6: The Teacher's Self-Directed Learning (the Facilitator of Learning)

In most courses, teachers are interested with assisting students in a lifelong learning process, so that the student establishes an interest in further learning and provides a base of ideas and skills to promote further learning and thoughts (Nasri, 2017). Modern

teachers must provide students with a combination of educational experiences (Gencel and Saracaloğlu, 2018). In the first place, the idea must shift from the concept of 'teacher' to the concept of learning facilitator, motivator and designer of the learning situation planner and sometimes meet the students genuinely as an ongoing co-learner. The core management role of teachers is to create a climate in which students can learn effectively and efficiently (Gugliemino, 2014).

The skill presented below will help a person succeed in becoming a learning facilitator. The facilitator must ensure that action is taken as follows:

Climate Setting: Get learners to get to know each other as individuals and as collaborative learning resources. Help knowledge seekers comprehend the idea of independent learning, introduce basic skills and generally foster a setting characterized by reciprocal care and support and intellectual rigor. Only when learners and teachers see each other as mutually beneficial individuals will self-directed learning thrive (Nasri, 2017).

Planning: The facilitator must build his model of competencies (knowledge, abilities, values and attitudes) with particular regard to the course content, namely:

i. The program's list of targets.
ii. A list of citations comprising pertinent information for these goals.
iii. A list of units of inquiry, describing the type of questions the program deals with.
iv. Arrange the contents required to be handled in units that can be managed
v. Arrange these units in a specific order, and incorporate the most effective means of communicating each unit (by delegated reading, audio-visual display, etc.)
vi. Deciding on the teaching methods to be used, welcoming input from learners at certain stages, including them in the decision-making process, and delegating tasks to subgroups or appointed committees (Conradie, 2014).

Diagnosing Needs for Learning: The facilitator could start with a model of skills that the specific learning process should be interested in. Explain it in such a way that the learners can feel free to change it or expand on it, evaluate objectively and without threat

the differences between their current level of skill development and the level expected by the template (Gencel and Saracaloğlu, 2018).

Setting Goals: The diagnosed needs should be interpreted into clear, achievable, meaningful and suitable learning goals. This can be done by proposing constructive changes (Du Toit-Brits, 2018).

Designing a Learning Plan: Propose recommendations for preparing a learning plan, introduce learners to tools, techniques and proposed structures (e.g. Consulting teams) to help one another prepare their plans (Du Toit-Brits, 2018).

Engaging in Learning Activities: When learners prepare and execute their learning activities the facilitator must make himself accessible to subgroups and individuals as a mentor and resource. In addition, take responsibility to ensure the value of the educational programs (Thornton, 2010).

Evaluating Learning Outcomes: Evaluation is not carried out solely by the educator; but through the collective evaluation of self-regulated evidence, making the right decisions about the adequacy of the proof of the knowledge seeker's goals and the adequacy of their standards and proof verification processes. To approach these decisions in such a way as to strengthen the self-concepts of the learners as self-directed individuals rather than reduce it (Conradie, 2014).

2.5.7 Developing Self-Directed Learners

It is possible to learn self-direction and it can be taught. It is recommended that students' motivation for self-directed learning should be examined (Guglielmino, 2014). Students need specific guidance and input to be empowered towards self-directed learning, which is inconsistent with the philosophical basis of autonomous learning and may contribute to discrepancy in promoting this process between teachers.

Knowing and understanding how students acquire knowledge and focus on learning, and their preparedness to acquire knowledge boosts the confidence of nursing students in their own capacity and strengthens the capacity to acquire knowledge in a new context (El-Gilany and Abusaad, 2012). The ability to be able to gain knowledge independently is

important in a continually changing setting to enable student nurses develop autonomous learning abilities and some sense of accountability and self-confidence which are important attributes of a future professional nurse (Sajeevan and Jose, 2018).

A learning facilitator's first duty is to assist knowledge seekers to acquire the skills as self-directed learners. The capacity of individual students to be self-directed is unique (Du Toit-Brits, 2018). At first, independent learning may be so strange to many learners that they become overly anxious. Since the learners were so conditioned to always have teachers, they should be told by the facilitator what to learn and how, this will help students to be less concerned and disorganised when faced with the burden of thinking about their learning requirement and how to acquire the knowledge (Khiat 2015). An instructor who is good should be able to motivate students to learn on their own.

Optional Skills for the Self-Directed Learner

The facilitator could encourage individual students to study a subject independently and only come to him to clarify any grey area. Students can be placed in small groups requesting each group to undertake a subject matter independently while the facilitator will only be consulted when there is a need. He may also engage a group of learners to consider a specific subject and ask for help whenever it is necessary. The learners will also have to evaluate their learning experience (Regan, 2003).

In explaining the concept of independent knowledge seeking, scholars should note that individual's attribute influence the specific learning style (Du Toit-Brits, 2018). Among all the theories / models that spoke about individual learning styles, Kolb's theory of experiential learning style can be used to bring about a clearer understanding of the processes involved in promoting independent learning among mature knowledge seekers.

2.5.8 Learning Styles

Learning styles are critical aspects of educational psychology in any field or specialty. However they are distinguished by persistent affective and cognitive behaviors that each person exhibits in their interactions with different learning environment or circumstance (Armstrong, Peterson and Rayner, 2012). Knowledge acquisition or education is a process that actively involves learners (Ültanır, Ültanır, Temel. 2012). Thus it leads learner to

identify their weaknesses and strengths - by discovering their individual learning styles (learners understand and interprets the learning process). Coffield, Moseley and Hall, (2004) also submitted that there is need for individuals to think about their learning style and identify their strengths and limitations to build a self-directed learning attitude and lifelong learning ability.

To remain relevant and useful in the growing healthcare industry, education is the most important element of the nursing profession. Nurse tutors should understand the most prevalent learning patterns amongst nursing students which will help teachers know more about their learners, improve how they acquire knowledge, as well as many learning strategies (Alharbi, Almutairi, Alhelih and Alshehry, 2017). Furthermore, recognizing all these details will assist tutors to design a more efficient curriculum (Murphy, Gray, Straja and Bogert, 2004). Past studies have reported different theoretical models that suggest learning styles and psychometric properties. The most widely cited learning models in nursing literature are Felder and Silverman and Kolb's learning style models (Alharbi, et.al., 2017). In this study Kolb's Learning Style will be used to explain how learners' characteristics influence their choices for some learning strategies. El-Gilany and Abusaad, (2012) carried out an investigation on Self-directed learning readiness and learning styles among Saudi undergraduate nursing students and discovered that the mean scores of self-management, desire for learning, self-control and the overall SDLR were 51.3±5.9, 48.4±5.5, 59.9±6.7, and 159.6±13.8; respectively. About 77% (211) of students have high levels of SDLR. The percentages of converger, diverger, assimilator and accommodator learning styles are 35.6%, 25.8%, 25.55% and 13.1%; respectively. The mean score of self-management, desire for learning, self-control and the overall SDLR scale did not vary with any of the studied variables. There is no association between the level of SDLR and the learning styles. They reached the conclusion that the high level of SDLR and the prevalent converger learning style among undergraduate nursing students would have a positive implication for their education and post-employment continuing nursing education.

2.5.9 Need for Reflective Learning in Nursing

Critical reflection as an educational approach for self-evaluating the learning process has become part of training since educators have started to appreciate the benefits of indulging

learners to reflect on their learning (Koshy, Limb, Gundogan, Whitehurst and Jafree, 2017). The technique helps students define their strengths and weaknesses, diagnose their learning needs, and become more aware of their own learning (Steven, 2016). Such a process stimulates the metacognitive abilities in the sense that students have to remind themselves what they do and do not understand at various junctures in the learning process (Miraglia and Asselin, 2015). If students ask questions about their own learning, they may need lesser teacher guidance and are much more likely to deal with difficult tasks (Famutimi, 2015). Reflective learning helps individuals to accept responsibility for their own learning, examine and query their core values and philosophies, recognise and tackle traditions on which their ideas, feelings and actions are based; and identify areas of possible prejudice, recognise their worries, and ascertain potential insufficiencies or areas for improvement. Reflective learning causes people to learn from their experiences (Koshy et.al, 2017). The process of reflecting on knowledge acquired is an approach that can build learners self-reliance and self-directed learning skills of professionals and produce efficient healthcare groups (Famutimi, 2015). There is a relationship between reflective practice and attaining enhanced level of care, which enthuses personal and professional development, while providing an avenue to implement what they have learnt (Jasper, 2013). Practically, isolating these two components is mostly an uphill task, and perhaps in some ways it is an arbitrary distinction itself as knowledge flows with the incessant decision-making process, and conscious and subconscious sifting of actions and responses impact what is apprehended (Steven, 2016).

Health care professionals could stand to gain from reflective learning as it helps them to meet the requirement and complexities in a constantly evolving healthcare environment (Famutimi, 2015). Many theorists have developed their own reflective learning theories. Dewey (1993) assumed that for practice, reflection was a necessary prerequisite. He suggested that learners meditate on what they learnt or experienced for proper application of knowledge gained and afterwards seek for more knowledge.

Reflection is in two parts:

Reflection-on-action, is an involuntary activity related to valuable experience useful for the resolution of problems and taken of new actions after the action has taken place.

Reflection-in-action takes place as the activity is going on. The individual focuses on what he / she does as the action takes place (Miraglia and Asselin, 2015).

Kolb (1975) constructed a whole cycle of learning that includes elements of touching, viewing, discerning, and doing. In Kolb's cycle, the knowledge seeker observes, conceptualizes, experiments, and ultimately experiences. Kolb felt it was very important to be a reflective learner to move through the various steps in this cycle.

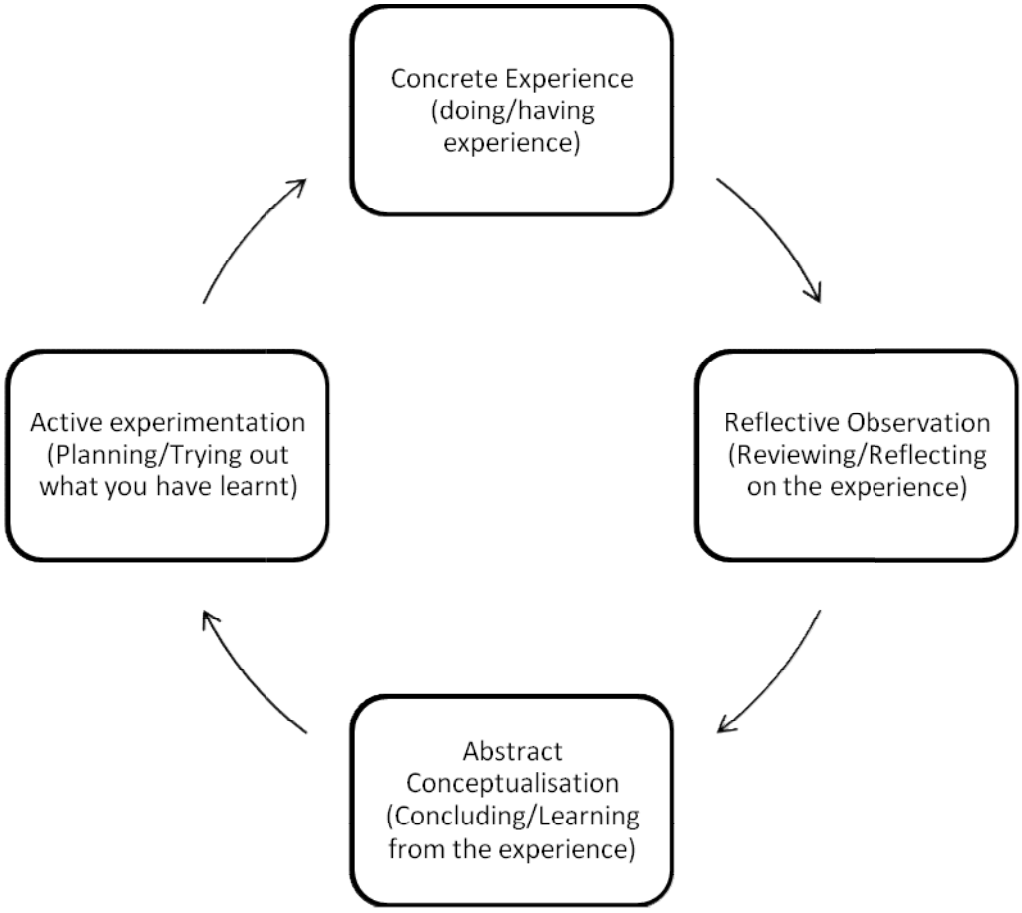

Figure 2.1: Kolb's Experiential Learning Cycle (McLeod, 2017)

When a nursing student is made to move around this cycle, actively, observing, conceptualizing, experimenting, and finally, experiencing, s/he gradually becomes a reflective learner.

2.5.10 Benefits of Self-Directed Learning

There is a strong indication to substantiate that learners who personally initiate learning, often learn more and better than passive learners who are dependent on instructors (Kinasevych, 2014). Self-directed learning is an important aspect of maturation which aligns with the normal psychological development processes cultivating the ability for increased responsibility by the learner across the entire lifespan. Based on the fact that the student sets the agenda, learning should be better coordinated, more purposeful, and therefore more effective and useful both in the immediate and in the future (Serdyukov, 2017), also since knowledge acquisition is an obligation of the seeker, the constraints between learning and living that are often found in conventional teacher-led educational resources should not arise (Camins, 2015). Furthermore, if there are no challenges between learning and living, learners would have less trouble in transferring their capacity for independent behavior in other areas of their lives. This will make them more useful to the society and their occupation (Kinasevych, 2014). Most of the latest educational trends place a greater burden on the learners in their own learning to take a lot of initiative (Petro, 2017). Self-directed learning is very vital in making professionals competent, and be able to overcome the challenges in the contemporary healthcare environment (Williamson and Seewoodhary, 2017). Several academic health institutions have integrated autonomous learning as an important form of education into their curriculum (Petro, 2017). The main feature of the learning schemes is that students assume major responsibility for their own learning, responding over and above guidance (Scott, 2017)

Educators have a great part to play in helping knowledge seekers gain self-directed learning skills and in doing so; they too should have a good grasp of what independent learning means. By being self-directed learners, educators will be up-to-date and competent in their specialization areas and expand their implementation capabilities (Shirazi, Sharif, Molazem, and Alborzi, 2017). Self-directed approach can solve one of medical education's most challenging problems which is an explosion of knowledge (Sharma, 2017). It is widely accepted that training programmes cannot impart all the vital knowledge that health professionals need to acquire and ongoing changes can lead to what Abrahamson (1978) defines as "curriculum hypertrophy." Instructors have tried to assist in

the acquisition of additional knowledge, which includes lengthening the period of training as well as adding postgraduate and continuing medical education and in-service learning for nursing education, but this is not yielding the desired results (Shirazi, et.al., 2017). Furthermore, because information which is relevant today may not be in the near future (Van Rensburg and Botma, 2015); it seems less appropriate to teach the facts of today than to ensure that knowledge seekers are able to learn and continue learning as the world evolves. This has resulted in a focus on the acquisition of lifelong learning skills which include the capacity to understand issues, identify knowledge to acquire, understand where and how to acquire the knowledge, interpret information, and consider one's own deficiencies (Toit-Brits and Zyl, 2017). The justification is that learners who acquire the skills are ready for the future and will remain current when they no longer participate in formal education programmes (Nasri, 2017). Through self-directed learning nursing educational institutions will be capable of producing skilled nurses who are analytical, critical thinkers, flexible in all areas of nursing and health care, and are well prepared with the necessary skills for addressing the dynamic environment of the health sector (Qalehsari, Khaghanizadeh and Ebadi, 2017). This will help the professionals to render high-quality nursing care in response to healthcare service consumers' demands

2.5.11 The Role of Educators and Institutions in Facilitating Self-Directed Learning

Literature review has identified suggestions from numerous writers on the best approach to promote SDL among any community of learners. This includes: Teachers should assist the learner in identifying where the starting point of a learning project is and how to discern appropriate evaluation and reporting methods (Van Rensburg and Botma, 2015).

Enable mature learners to understand the context of knowledge and facts, to appreciate the worth of structures as cultural concepts, and to understand how individually or collectively the world can be reshaped positively through their actions (Shirazi, et.al., 2017). Educators need to build a relationship with knowledge seekers by contracting a training agreement for learning goals, techniques, and criteria for appraisal.

Be a knowledge acquisition leader, rather than a channel of information and together with the learner explore new and interesting knowledge from available sources.

Educators should help learners attain the techniques for needs assessment, required to find out what their learning aim should be. Inspire the setting of targets to be accomplished in a number of ways and provides a many avenues for demonstrating progress. Provide descriptions of research that was historically appropriate. Make sure students are mindful of expectations, training plans, tools, and requirements for assessment once these have been determined. Inculcate investigative and decision-making skills, personal growth, and self-appraisal of work. Support the educationally underserved populations to gain access to resources. Identify learners' needs and assist in matching it with resources available, help students find resources.

It is the role of educators to help students form the right disposition and perceptions of educational autonomy. Recognise types of learners ' personalities and styles of learning (Shirazi, et.al., 2017). Strategies such as hands-on and problem-solving session that takes advantage of the robust knowledge base of adults should be employed. They should create high quality training guides, including planned learning kits (Westin, Sundler and Berglund, 2015). Encourage critical thinking abilities through the incorporation of activities such as seminars (Rajesh, 2017). In order to facilitate improved performance, build an open environment for learning and confidence. Guide students from manipulation by supporting a code of ethics and behave ethically, including not promoting an approach to self-directed learning unless it is compatible with the needs of the learners (Shirazi, et.al., 2017).

For educational institutions and employers involved in providing self-directed learning experiences (Sajadi, Fayazi, Fournier and Abedi, 2017), it was suggested that academics or instructors should collaborate with committees of specialists to develop or propose curricula or requirements for assessment or investigation of the latest developments , as well as desires of students. Construct instrument or criteria for assessing students' current performance and their likely performance. Provide occasions for reflection on what the self-directed learners are studying. Recognise and reward students for achieving their training objectives. Promote networks of learning, circles of study and learning exchanges

and provide self-directed learning instruction to employees and extend the possibilities to apply it (Westin, Sundler and Berglund, 2015).

2.5.12 A Comparative Exploration of Self-Directed Learning and Traditional Didactic Lecture

Repeatedly, learner-centered approaches are superior to the conventional tutor-based method of imparting knowledge. This is a conclusion that applies whether the assessed outcome is short-term mastery, long-term retention, or depth of understanding of course material, acquisition of critical thinking or creative problem-solving skills, formation of positive attitudes toward the subject being taught, or level of self-confidence in knowledge and skills (Felder and Brent, 2016). When it comes to teacher-directed learning, students are more reliant. If a student is required to work on a learning task, he or she would often seek comprehensive information on the subject, whereas if the training content is given by an instructor, the student is pleased with the available information (Tang, Chen, Zhu, Zuo, Zhong et.al., 2017). Orientation to learning in a teacher-driven educational environment becomes subject-centered. The willingness to acquire knowledge through a teacher-led training depends on maturity levels, but it arises from life activities and challenges in the case of self-oriented education. Motivation and explorations are shown by learners in a self-directed learning scenario (Nasri, 2017).

In terms of lecture plans, the knowledge seekers show participatory decision-making and preparedness in self-directed learning, they assess themselves through mutual self-assessment and collection of evidence (Esthermsmth, 2017). Majumdar, Roberts, Knechtel, Noesgaard, Campbell and Tkachuk (1998) contrasted the efficacy of Self-Directed Learning (SDL) and Faculty-Directed, Demonstration-Return-Demonstration Training (DRD) for Psychomotor Clinical Nursing skills among second-year Baccalaureate Nursing students. They discovered that participants using the Self-Directed Learning Model earned higher grades in the level of knowledge. Although, the result seemed the same, more knowledge seekers expressed preference for faculty-directed (DRD) approach. Mature students may be more autonomous in learning, but learning strategy and preparedness for self-directed learning need to be assessed when determining whether self-directed learning strategies used are suitable (Sharan, 2017). However, it is

perceived that SDL offer benefits of increased confidence, independence, determination and lifelong learning preparedness (Poathen, Vadakkedom and Geeta, 2017).

Self-directed learning has numerous interpretations, hence there is no one size fits all interpretation of the idea and there may be different perspectives between students and teachers. Learning to learn is not just another message to make people continue to read. It signifies a particular pedagogical method which educators have to learn first if they have to transfer it on to others (Westin, Sundler and Berglund, 2015). Each learner's passion to acquire knowledge must be achieved by supplying him with the means, opportunities and resources to transform his personal studies into a productive practice, not only in an academic setting, but elsewhere, in diverse situations (Ramnarayan and Hande, 2005). Self-directed learning is a model not a law, it ought to be seen as an exploring technique. Self-directed training is not a modern technological hype; it is a fundamental skill required for learners to acquire knowledge independently of a teacher, which has recently become a necessity to survive in this current and ever-changing world (Carpenito, 2012).

Moreover, conventional lecture-based instruction is low in productivity, as previous studies recorded that at the end of the school, the average student pay rapt attention for about 10 to 20 minutes during learning (Ying et.al. 2017; Ma et.al. 2018). Anyaehie, Nwobodo, Oze, Nwagha, et al.'s (2011) evaluation of physiological learning environments by medical students in two Nigerian medical schools came up with the conclusion that innovative adjustments in a strictly traditional setting may seem difficult to achieve, but the view of students shows that it is crucial to properly manage educational transition, while being disposed to explore other avenues regardless of culture. For students, lecture-based learning are boring, repetitive for instructors, and have a negative impact on outcome; teachers need to find ways to reduce their use. Hall, (2011) in a study on SDL attributes of college students in a short seasonal programme, found that an inference of learning suggests modifying teaching pedagogy as a vital step in improving 100 level college students ' academic success. Academic institutions ought to be encouraged to evolve a syllabus that does not depend on students ' knowledge regarding rote memorization and spoon feeding. Rather, a learner-based syllabus that allow students to have authority over the learning process as well as the revised didactic strategies which

are vital to imparting highly self-directed learners ' habits. A review of conventional and interactive lecture approaches for professional courses, by Miller, McNear and Metz, (2013) indicated that engaging lectures produced a better result between participants – evidenced by an increase in unit and final exam quality. In an engaging lecture group, the average unit test scores are more weighty (8.6%) than that of the conventional teaching group, inferring that engaging lectures would boost student's understanding. Hence, the final test scores of the stimulating lecture are 22.9% more than the closing marks of the conventional lecture group.

Meguid and Collins (2017) conducted a study on the views of students on teaching approaches: conventional versus interactive teaching and found that interactive teaching enabled all students to participate with focused attention during the learning process and gave comments based on their understanding. 95% recognized an increase in their involvement and discovered that their thoughts were clarified. Interactive teaching also helped them to focus on key points. About eighty two million claimed that their inspiration to learn improved. Students saw it as a useful method for providing real-time feedback that amplified their output and involvement. Data from focused groups found that this approach helps concentrate the interest of students and explain the facts (Halakeri and Karnataka, 2018).

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2.6 Other Learning Strategies

There are other types of teaching strategies utilised for effective participation of the knowledge seekers in which the learners themselves were involved in the design. These teaching strategies also promote critical thinking in the learners.

2.6.1 Learning Contracts

The learning contract establishes a connection between identified educational needs of individual students and the training programme. This is of particular importance in settings where learners needs and interests vary. A training arrangement is a negotiated agreement between the students and the teachers, which is targeted at changing the behavior of the students, and to enhance their learning opportunities. It is a structured learner-written agreement (agreed to by all parties) which establishes specific academic

and, or behavioral goals for the learner. This includes details of what, how, when (date, time and duration), where and the criteria for assessment that will be adapted to assess the result of the knowledge transfer process. Training agreements help instructors, as well as students to share training accountability.

Contract training can offer some practical advantages, including a greater participation of the knowledge seekers in which they themselves were involved in the design. There will be an increase in accountability on the learner's part, internal encouragement and a profound sense of accomplishment. The contract also provides the learner with a means of receiving ongoing feedback on progress towards achieving learning goals.

Learning contracts in the online environment can be highly effective. But because it is not possible to have physical meetings with students to discuss their ambitions and hopes online, teachers must be simple and specific about the responsibility of the student, vice versa. A training agreement should promote discussion and simplicity of learning objectives and expected outcomes (University of Waterloo, 2018).

2.6.2 Discussion

Discussion is adult learners ' most preferred instructional technique for it is a participatory form of learning. Engaging in conversation when teaching allows students to examine different perspectives to thinking and behaving. Discussion helps students evaluate their own views so that they can become deep thinkers. Often the discussion is the foundation of an online course (Ying, 2020).

Discussion Group

Discussion group allows students to reflect and present their opinions on a topic under discussion. Small group discussions frequently take place at high intellectual levels-specifically examining, synthesizing and evaluating/ interchange of ideas between students and the teacher or among a group of students resulting into active learning for the realization of the predetermined teaching-learning objectives. This group discussion, in no way, occurs occasionally or incidentally but is planned and organized with deliberate efforts on the part of teacher and students for achieving the set goals (Abdulbaki 2018).

The Organizational Procedure

In this strategy, students of a class may form a group along with the subject teacher. The teacher is the leader of this group on account of his status, functions and responsibilities fulfilled by him in the organization of group discussion. Usually, the following three stages and steps are involved in the employment of group discussion as a teaching strategy.

1. Planning and setting the proper stage for discussion
2. Ensuring active, democratic and useful participation of the group members
3. Evaluating the outcome of the discussion in the light of the realization of objectives.

At this first stage teacher induces the need of holding group discussion and sets the stages to make necessary assignment for facilitating the employment of group discussion as a teaching strategy.

At the second stage an environment for the proper implementation of the strategy is ensured. Teacher at this stage ensure that every member of the group plays active role in the group discussion. The discussions are held in a perfectly democratic style providing full and free exchange of ideas within the group. Teacher as a group leader controls and monitors the progress of the discussion in a perfectly democratic way with his least involvement in the discussion. The aim remains to make the members engaged in useful discussion for achieving the desired teaching-learning objectives.

At the third stage, the outcomes of the discussion are evaluated in terms of the realization of the set objectives. For this purpose, a member secretary may be asked to keep the record of the discussion held in the group, the questions raised, the suggestions put forth by the members, the effort made and consensus reached, the direction and guidance given by the teacher as a group leader and conclusion arrived, are all noted. In the light of these efforts, an attempt is made to fill in the gaps of the information gathered through discussion so that the group members may be able to develop desired insight into the theme or the subject of group discussion (Basavanthappa, 2018).

Advantages of Group Discussion Strategy

As happens with all the methods and strategies, the group discussion strategy also carries strengths and weakness.

Group discussion ensures the active participation of the students in the process of teaching-learning. It traces the students for carrying out group activities and co-operative tasks. The qualities linked to proper social development and democratic living is also developed with the adoption of this strategy. It provides opportunities to the students for imbibing the qualities of a good listener as well as effective leader. When a group member speaks, others listen with patience, try to show respect for his opinion but at the same time they may also put up their own views in a quite democratic way. Here students may be able to develop their abilities and skills regarding critical thinking, analyzing synthesizing, evaluating, inferring problem-solving, and the abilities like understanding other's opinion, initiating and supporting the shy members of the group, waiting for their turn to put their own point of views, reacting patiently to negative and opposite remarks, working cooperatively for the attainment of the proper results of the discussion.

Group discussion may also help in developing desirable interests, attitudes, ideas and other social and moral traits. In this way group discussion strategy proves quite effective for the realization of objectives related to higher cognitive domain and affective domain of the learner's behavior. It enables the students not to accept any idea blindly but to weigh it with all its pros and cons and consequences before practicing. It provides good training for verbal communication, expression of ideas and creative and constructive thinking. A free and democratic discussion provides proper check over the wrong information, ideas and ways of problem-solving (Pinantoan, 2014).

Drawbacks and Limitations of Group Discussion

Group discussion as a teaching strategy may suffer from following drawbacks and limitations: The teacher as a group leader may take all initiative in his hand by unnecessarily interfering in the thought process of the members or talking too much.

The group discussion may go out of track by paying little considerations to the set objectives. The group members may clash with each other cutting loose and negative personal remarks. One or the other members of the group may dominate the whole

discussion leaving little or no chance to others for expressing their views. The shy or inactive members may not show any interest in the discussion or they may feel neglected or depressed on account of the lack of ability for initiative and expression and; A group in discussion may be divided into cliques leading to adoption of non-compromising postures and thus may create problems for arriving at useful decisions and conclusions (Basavanthappa, 2018)

2.6.3 Mentorship

Mentoring is focused on the personal growth of learner, drawing out and shaping what the student already knows. Mentors provide guidance and exposures that can propel students to greater horizons; providing insight, introducing them to tools and enthusing them with the right attitudes to work and grow. Essentially, education mentors teach expected behaviors by interpreting the environment and modeling. Through mentoring, mentees are supported to develop their vision. The mentor provides guidance to the mentee in their personal and professional growth. Mentoring in education involves pairing young people with an older peer or volunteer, who acts as a positive role model. In general, mentoring aims to build confidence, develop resilience and character, or raise aspirations, rather than to develop specific academic skills or knowledge. Mentors typically build relationships with young people by meeting with them one to one for about an hour a week over a sustained period, either during school, at the end of the school day, or at weekends.

Activities vary between different mentoring programs. While some mentoring programs include some direct academic support with school tasks, other approaches focused primarily on direct academic support Mentoring has increasingly been offered to young people who are deemed to be hard to reach or at risk of educational failure or exclusion. In the ideal situation, regardless of the configuration of a mentoring relationship, mentors and mentees will work together to define the knowledge, skills, abilities, and outcomes each person expects at the beginning of the relationship. These conversations involve mentors and mentees engaging in self-assessment and self-reflection. In other words, significant discussions are vital for successful initiation of mentorship. Online mentoring offer opportunities for frequent and easy communication

between mentor and learner. This is a major advantage. Weekly or even daily journals and important information between mentor and student can be sent via email, offering an ongoing "dialogue" that facilitates mentor relationship, offering a great window for prompt feedback on student questions, concerns and issues (Arnesson and Albinsson, 2017).

2.6.4 Small Group Work

Small group teaching is a dynamic method of imparting knowledge in nursing programme to improve students' theoretical knowledge base and hands-on experience. Learners can examine content, exchange ideas, and address issues in small groups. They express their own thoughts as well as considering other people's ideas. Discussion in some form or other underpins all small group teaching for these methods seek to examine a topic or problem through the free flow of argument in which participants learn from each other by pooling ideas. As such it is an attempt to better understand knowledge and solve problems rather than acquire new factual information; thus it is 'discussion with a purpose. This allows exposure to different points of view. Many small group formats promote collaborative efforts and offers an avenue for interaction (Wong, 2018).

Teaching small groups is more complex and challenging than generally realized because it calls for more flexibility and adaptability, higher facilitative and interactive skills, as well as superior planning and organizational competencies. This means the effectiveness of the teacher is more critical for successful learning than in other methods and, at the same time, perhaps more risky and less controllable. Trends in recent years show that the use of small group teaching is increasing in universities. This is because, since early days, it has always been well-suited to the development of deep and meaningful learning at higher cognitive levels, but now it has been found equally beneficial for the development of a range of professional competencies, personal skills and desirable attitudinal traits. More specifically, learning in interactive groups enhances critical thinking, problem-solving, communication skills, innovativeness, and both inter-personal and team skills. All of these are much in demand today with current external pressures and market forces affecting university practices (Hamid and Surabaya, 2019).

2.6.5 Guided Design

Using guided designs, promotes small-group communication. It is also used for critical thinking and autonomous learning (Petro, 2017). This method is distinguished because decision-making and problem-solving mechanisms which include using actual-world problems to master learning material, utilising small-group or team management methods and facilitator guidance and feedback. The emphasis here is on improving the decision-making skills of the learners and the acquisition of fundamental ideologies. The leaning method allows knowledge seekers to resolve open-ended problems which will involve information gathering from other sources besides the school environment.

This design motivates learners in a decision-making process to reason in a sensible manner, expressing ideas, and applying the necessary steps. In addition, students are expected to adapt the knowledge gained for deliberations on new ideas, and reflects on proposed results. The job of the educator is to function as the team consultant (Lee and Lapum, 2018).

2.6.6 Role Playing

This strategy involves creating a situation related to a real-world issue where individuals perform different roles. It facilitates an appreciation of the roles and behaviors of other individuals and the likely approach to be used for identifying and resolving problems. Role playing is usually used to present real-life work scenarios to help knowledge seekers understand a topic or circumstance. It is a teaching strategy in which a situation is dramatized by a group of students by playing specific roles, as desired by the situation, under the direction of a teacher for deriving useful educational experiences. The role-playing strategy thus represents a spontaneous, unrehearsed life like presentation of some situation for gaining insight into a specific problem or deriving useful educative experiences.

For making role-paly strategy to attain its desired objectives it is essential to meet the following conditions:

- The students who engage in role-playing must understand clearly the situation and the roles to be played by them for depicting the scene of that situation

- The role must be portrayed or played with quality
- The role or situation must have a real life quality
- All the members of the group should closely and actively attached to the role-playing either as role player of observers (Glover, 2014).

Phases or Steps involved in Role-playing

The role-playing strategy may follow the nine specific phases or steps in any classroom situation. These are as follows:

- Warning up state: Concerning with the creation of a problematic situation or citing of a problematic experience.
- Selection of role-players: Concerning with the selection of students for playing the specific roles as demanded by the situation.
- Setting of stage for role-playing: Concerning with making necessary environmental setting for role-playing activities.
- Preparing of the observers: Concerning with the assignment of the roles of observers to the students who are not acting as a specific role-players.
- Enacting the story, roles and situation: Concerning with the actual role playing process. Here the role players may be asked to enact their specific roles as demanded in the situation.
- Discussion and evaluation: Concerning with free and frank discussion about the qualities of the roles.
- Re-discussion and evaluation: Concerning with the discussion about the specific roles, their effects as generating of responses and deriving useful implications leading to solid conclusions and educative experiences.
- Deriving generalization: Concerning with making relevant generalization and learning useful lesson applicable to real life situations (Basavanthappa, 2018).

Advantages of Role Playing

The role-playing strategy carries the following advantages:

It provides opportunities to the students to learn about a subject from the inside. It gives them to feel the intensity of the situation by enacting it through role-playing. It increases student interest, motivations and effect for learning about a subject or phenomenon. In

role-playing, the students derive useful real life like experiences through playing specific roles or observing and in turn it prepares them for their future life activities. It provides training in verbal and motor communication of the behavioural acts by expressing as spontaneously and freely as possible. The students gets opportunity to imbibe useful qualities for social participation and co-operation by giving due regard to others' feelings and points of view. It can provide die insight into real life problems and develop problem-solving abilities of the students. It can be used for illustrating and explaining the various phenomena and incidents related to classroom teaching of various subjects.

Demerits and Limitations

The role-playing strategy suffers from the following demerits and limitations.

The students may not understand the problem or the situation for playing the role with needed effectiveness. The role-playing strategy becomes effective only when the players and observers truly believe in the story or the situation to be enacted. Usually the students do not believe in what they are doing with their roles as players or observers. In such a situation, role- playing strategy loses its impact and significance. The students who may enact the assigned roles effectively, are not easily available for making the strategy a success. The role-playing strategy expects too much from the teacher as he in one who has to create a life like problematic situation or story plot, prepare and draft the role-playing activities for some useful educative gains. There is quite dearth of such capable and trained teachers and in such a situation, the expected desired results with use of role-playing strategy may not be achieved (Havens, 2019).

2.6.7 Games as a Teaching Strategy

Games require the interaction of two or more teams when trying to achieve an objective. It provides another opportunity to learn from small group teachings. Using games involves following a set of rules and procedures to generate evidences for the decision-making process. Many instructional games echo standard true-life situations. The game's rules, techniques and goals need to be made clear and understandable (Teyssier, 2016). A game is a type of play where participants follow defined rules. Games can be used as a support tool to complement traditional teaching methods to improve the learning experience of the learners while also teaching other skills such as following rules, adaptation, problem

solving, interaction, critical thinking skills, creativity, teamwork, and good sportsmanship. Many different types of educational games are being applied and used in educational institutions, schools and homes. Using games in education mostly focuses on improving critical thinking skills while teaching a particular subject, by allowing students to think outside the box as they follow rules. Games that incorporate curriculum content or other educational material are referred to as educational games (McEnroe-Petitte, 2020).

Advantages of using games in education

Games play a vital role in building students' self-confidence. As educational tools, games are constructive as they liven up teaching methods which are normally considered dull and boring. Games engage students in the role of applying technology to learn. The use of games in education plays an important role in engaging students by encouraging a-hands-on approach. Games help students remember what they have learnt as active participation is encouraged, students can use games to remember the critical points which they can apply in their examinations as well as in real-world situations. By playing games, students gain visual and computer literacy skills which will prepare them for the world of work. Students are made to follow some rules while playing games; they can apply this knowledge in real world situations as they are encouraged to think outside the box. Games are beneficial for students with attention disorders as it helps capture students' attention; this is considered to be a fun way of learning. Research conducted has discovered that web based games can assist learners who experience attention problems. It can also be used to teach other skills such as critical thinking, problem solving, sportsmanship, interaction and collaboration with peers. This helps in creating less stifled individuals who are not limited but can adapt to any real world situation (Zirawaga, Olusanya and Maduku, 2017).

Disadvantages of using Games in Education

However, gaming in education has setbacks which need to be addressed, providing a platform for students to play revision games becomes a challenge when teachers or instructors cannot control such an environment. Students can have access to other platforms which are harmful. Students who rely on games are often secluded from real life interaction. Continuous use of computers and other electronic devices can cause health

hazards such as eye strain and other physical problems. The technologies required for full participation in games can be quite expensive and this can create a gap between the students who have access to the technologies and those who do not have access (Zirawaga, Olusanya and Maduku, 2017).

2.6.8 Online Learning Environments

Online learning is any distance education delivered through a web-based system. It is the use of information and computer technologies to create learning experiences. Online learning is facilitated and supported through the use of information and communication technology, e-learning can cover a spectrum of activities from supported learning, to blended learning (the combination of traditional and e-learning practices), to learning that is entirely online. Online learning environment provides many significant advantages. Firstly, while still having access to the educator, learners can be self-reliant in the learning process. In some instances where meeting synchronously is impossible for members of a virtual class, small groups can be created in relation to specific time zones, allowing a suitable time for meetings to be held concurrently.

For small group work, while still having larger groups may benefit from asynchronous interaction through conference. Another advantage of online learning is the equalization of power between the participants. In this context, learners are not disadvantaged by conditions such as geographical location, gender or impairment. Eventually, without taking the time of other groups the instructor can respond to enquiries and demands of each group (Bigatel, 2016).

2.6.9 Project Approach to Learning

Project approach to learning is a non-conventional way of learning that strives to adequately prepare students to solve real-life complications and tests while teaching everything they need to know to be successful in school at that point in time. Project-based learning organizes education around individual tasks, providing multi-step challenges for students to address and pose complex questions that need to be answered. Such projects often require students to successfully use multiple learning strategies, such as research, deductive reasoning, and interactive learning (trial and error). Because these

projects are normally too big and complicated for one student to execute alone, project-based learning also encourages teamwork (Terada, 2018).

Project-based learning (PBL) is a practice that takes a learning-by-doing approach wherein students are active participants in their own educational development. In a PBL classroom, the students take part in solving problems, participating in simulations, conducting case studies and designing research projects based on different areas of inquiry. This method encourages students to investigate real world issues and develop practical solutions in order to inspire change at the local and global levels. Strong PBL practice requires a multidisciplinary approach, where educators collaborate to support differentiated skill building and sustained inquiry, further developing individual student voice and choice. Online platforms and projects provide avenues for students to explore their specific interests (Shoukat 2019). It can be performed either individually or in groups and provide hands-on experience and a sense of satisfaction for learners. The opportunity to undertake project activities in an educational programme makes learning more relevant to the learners. Instead of being limited to criticism and interactions from facilitator, results can be discussed and criticized by others in the class, making it possible for the learner to obtain more diverse opinions and recommendations by discussing individual projects with other participants (Mo and Tang, 2017).

Characteristics of Project Based Learning

Here are three characteristics of meaningful project based learning activities that lead to deeper student understanding:

1. **Interdisciplinary:** Project based curriculum is designed to engage students using real-world problems. This is an interdisciplinary approach because real-world challenges are rarely solved using information or skills from a single subject area. Projects require students to engage in inquiry, solution building, and product construction to help address the issue or challenge presented. As students do the work, they often use content knowledge and skills from multiple academic domains to successfully complete the project.

2. Rigorous: Project based education requires the application of knowledge and skills, not just recall or recognition. Unlike rote learning to assess a single fact, PBL assesses how students apply a variety of academic content in new contexts. As students engage in a project, they begin with asking a question. Inquiry leads the student to think critically as they are using their academic knowledge in real-world applications. The inquiry process leads to the development of solutions to address the identified problem. They show their knowledge in action through the creation of products designed to communicate solutions to an audience.

3. Student-centered: In project based learning, the role of the teacher shifts from content-deliverer to facilitator/project manager. Students work more independently through the project based learning process, with the teacher providing support only when needed. Students are encouraged to make their own decisions about how best to do their work and demonstrate their understanding. The project based learning process fosters student independence, ownership of his/her work, and the development of 21st century/workplace skills (Terada, 2018).

Benefits of Project Based Learning in Education

Research on project based learning supports an increase in student engagement, achievement, and encourages the development of 21st-century skills students need to succeed in their future careers.

- Project based learning is a multidisciplinary pedagogical approach providing meaningful learning opportunities. While project based learning can certainly be content-specific, it provides a vehicle for integrating multiple subjects into one cumulative project. Project based learning encourages students to make meaningful connections across content areas, rather than thinking about each subject area in isolation.

- Project based learning helps build 21st-century skills students need to succeed. As educators, it is essential to prepare our students to meet the demands of today's changing global society. With increased engagement, project based learning

encourages a deeper understanding of content which develops critical thinking, communication, collaboration, and creativity. These skills are required for college, work, and life beyond school.

- Project based learning provides opportunities to engage students in real-world learning. Project based learning is arguably the greatest opportunity to engage students in authentic projects or performance tasks tied to real-world careers and experiences.

- Project based learning can be implemented in person or in remote learning environments. Project based education follows a flexible, differentiated model where students have the freedom to work independently or collaborate either in person or virtually. Performance tasks work well especially when students do not all have access to the same materials (Basavanthappa, 2018).

2.6.10 Collaborative Learning

The collaborative learning method brings two or more students together to learn. Under this system, learners with varying levels of ability are organized in to small groups, and use a range of learning methods to master content originally developed by an educator, or gain expertise on important issues. Team members, each take the responsibility to learn what is taught and to help others to learn.

The effectiveness of collaborative learning in fostering cognitive development, self-esteem, and supportive student-student interactions is higher, when compared with interpersonal competitive and individualistic efforts. Thus it is imperative for the learning tasks to be precisely and carefully designed for work to be efficient (Scheuermann, 2018).

2.6.11 Case Study

Case study is a method of teaching using a case, or story, with a hidden message, which students explore to make a decision or solve a problem, developing specific skills and knowledge through inquiry. Case study is a constructivist method of teaching, with emphasis on student engagement for the challenging and reconstruction of their understandings. This learning technique allows students to rely on their past experiences; adopting a participatory approach, with elements of action that are linked to future

experience. This teaching method is very adaptable, and entails problem-based learning and facilitates analytical skills development. Choosing a suitable problem condition that learners can relate with based on their preferences and level of experience. The case study approach provides participants with information about the problem; including the historical setting, as well as the personalities prominent in the circumstance. While objectivity is a key component, it should allow the ideas and interpretations of people. Essentially it ought to guide learners form their own opinions and conclusions, while proffering solutions. This way they can compare their findings to how decisions were taken to resolve an issue of concern. The case study approach can be implemented in a group or many groups. It is a method that promotes real-life approach to problem solving which helps students to define concepts by analyzing the data or evidences and how to adapt them to various circumstances. In tandem with some other educational approaches, case analysis is equally effective (Bonney, 2015).

Using case study as a teaching strategy enables students to reason critically about situations and proposes appropriate courses of action. Case studies uncover values, perspectives and ideas of classmates resulting in students examining their own understandings, leading to deeper analysis of concepts, ideas and solutions. Although it is a valuable social and ethical tool, complex planning may result from the individual learning needs of the students. The planning process must also consider the cases to be used, and whether they are detailed and inclusive enough to nurture a valuable skill set which is transferrable across the curricula. Case studies assist students' development of analytical skills, establishing an understanding of where and when to apply particular skills and strategies to solve specific issues, or define certain outcomes. Students engaging in learning through case studies become more capable of identifying issues or problems as they arise, determining perspectives and importance of information then effectively using and justifying actions taken toward any resolutions or discoveries.

However, student differentiation often requires extensive planning to ensure that not only are the cases used appropriate, students are equipped with the skills to work effectively in an 'open-ended question' setting which sometimes requires detailed analysis and generalised thinking. Developing these skills can be time consuming and frustrating, for

both teacher and students if information is deceptive or curtailed. But the likelihood of knowledge transfer to future applications, when the skills are acquired using this method of teaching is a possibility (Basavanthappa, 2018). With effective planning and preparation, using case study as a teaching strategy is a valuable method for developing students' ability to think critically and analytically to identify areas requiring attention or resolution, both in the classroom and in real world scenarios. Time restrictions and pre-preparation concerns may suggest this strategy to be most effective in established classrooms, which the students have adequate time throughout the term/year to develop necessary skills to effectively engage in the use of case studies.

Using case study as a teaching strategy also incorporates the use of discussions, group work, cooperative learning and student research, and offers students the opportunity to evaluate issues and puzzles, connecting concepts and ideas to real world situations in a guided environment. In order for this method to be effective, students in post-secondary institutions are more likely to benefit from this exercise, as they have developed a variety of skills across a range of disciplines. It also promotes multiple means of engagement by providing relevant and interesting tools and resources to maximise value and authenticity of the task. In addition, it provides options for sustaining students' efforts by varying the demand of challenges and emphasising the importance of the objectives. Case studies foster positive community collaboration (Minniti, Melo, Oliveira and Salles, 2017).

Advantages to the use of case studies in class

The case study teaching method is a highly adaptable style of teaching that involves problem-based learning and promotes the development of analytical skills. By presenting content in the format of a narrative accompanied by questions and activities that promote group discussion and solving of complex problems, case studies facilitate development of the higher levels of Bloom's taxonomy of cognitive learning; moving beyond recall of knowledge to analysis, evaluation, and application. Similarly, case studies facilitate interdisciplinary learning and can be used to highlight connections between specific academic topics and real-world societal issues and applications. It increases student motivation to participate in class activities, which promotes learning and increases

performance on assessments. Other major advantages of using case study as a method of teaching include: It helps to develop problem solving abilities of the learner and analytical tools, quantitative and/or qualitative, depending on the case. Assist in effective decision making in complex situations and promotes ability of coping with ambiguities (Bonney, 2015).

Guidelines for using case studies in class

In the most straightforward application, the presentation of the case study establishes a framework for analysis. It is helpful if the statement of the case provides enough information for the students to figure out solutions and then to identify how to apply those solutions in other similar situations. Instructors may choose to use several cases so that students can identify both the similarities and differences among the cases. Depending on the course objectives, the instructor may encourage students to follow a systematic approach to their analysis. For example:

- What is the issue?
- What is the goal of the analysis?
- What is the context of the problem?
- What key facts should be considered?
- What alternatives are available to the decision-maker?
- What would you recommend and why?

An innovative approach to case analysis might be to have students role-play the part of the people involved in the case. This not only actively engages students, but forces them to really understand the perspectives of the case characters. Videos or even field trips showing the venue in which the case is situated can help students to visualize the situation that they need to analyze (Minniti, et. al.,2017).

2.6.12 Forum

The forum takes the form of a dialogue conducted by a resource person or more and a set of people. While the discussion session is being guided by a moderator, the viewers' initiate and discuss concerns, make submissions and request for clarifications

from the resource person(s) and one another. There are two versions of the forum which are the panel and the symposium.

A panel forum is normally consist of a number of people (3-6) sitting before an audience and holding a purposeful discussion on a subject in which they have experience. The panel is casual in nature, it is directed by a moderator, but does not require the audience to participate. The symposium is a collection of lectures on diverse perspectives of topical issues given by two to five individuals. Though the symposium is structured, it allows interrogations from the listeners after some expositions, which provide a variation in opinions of specialists and an opportunity for feedback from listeners (Basavanthappa, 2018).

Values of the Forum Method

Since it is rarely used by itself, the forum should be viewed as a supplementary method which enhances and extends the benefits of other information transmitting approaches to learning. It offers the additional dimension of allowing the audience to ask questions about points which were not clear during the previous presentation. The forum also provides an opportunity for the correcting of misimpressions given by the speakers. The forum is also a form of review in which the audience can again think through the issues, thereby providing additional order and design to the learning experience.

Good interest is usually maintained in a forum situation. When people hear controversial points of view presented by speakers or debaters, they tend to be drawn into the subject at hand and subsequently want to interact with the viewpoints of the speakers. The most significant person in the presentation is the chairman, who will keep the questions on target, sort out key questions for discussion, prod the special speakers if necessary and summarise the significant findings at the end of the session (Pinantoan, 2014).

Problems in Using the Forum

The biggest danger in this teaching approach is failure to find an attractive subject. Sometimes a subject may be of interest to the speakers who live with its implications day by day but of little concern to the audience. If so, when time for questions is offered, everyone will sit silently looking at the chairman. Such an experience is embarrassing to the speakers, and deadly in terms of creating a vital learning experience. In thinking about

using a forum for any class, make sure learners agree that the subject matter for discussion is relevant and meaningful to them.

Another problem is the danger of being overwhelmed by one particular position. This is particularly dangerous when using a lecture-forum. It can also become a problem in debate, symposium, or colloquy if one side of the argument is weak. It is always difficult for a group to be objective on a controversial issue. But once a speaker has delineated an opinion and only one side of that issue has been adequately presented, it is almost impossible for an audience to consider the other side honestly and openly.

It is only fair to say also that using any teaching method of this kind takes time. The teacher who uses various forms of discussion will invariably be a teacher who is committed to quality rather than quantity. In other words, he is more interested that his students learn well the things which he presents than that they skim over a lot of material during the class time (Ying, 2020).

Principles for Effective Use of the Forum

Remember the primary objective is to stimulate thought and offer information, not to solve problems. Make sure the chairman is competent for his role, which includes introducing the speaker or speakers, reminding the audience to be ready to participate after the presentations are made, soliciting response from the larger group, clarifying questions and answers when necessary, avoiding awkward pauses of silence by posing questions himself, and keeping the discussion on the sharp edge of controversy. He must do all of this while refraining from a lengthy or prominent speaking role himself.

Make sure that the original presentations are as objective and accurate as possible. If misinformation is given during this stage of the method, the discussion will be an exploration in error and meaninglessness rather than truth.

Always include a summary at the conclusion which will attempt to clarify what issues have been presented, how they relate to one another, and what course of action should follow on the part of the group members (Basavanthappa, 2018).

2.7 Learning Outcomes

Learning outcomes are declarations that define the knowledge or skills which students will learn at the conclusion of a particular learning programme, school, course or curriculum and help students recognise why the knowledge and skills will be beneficial to them (Mahajan and Singh, 2017). They are declarations of what a learner is required to know, understand and/or be able to show as a behavioral change after completing a learning process (Sinaga, 2018). It is a word used to denote the degree of success attained in a specific or general field. It is the end product of learning whose permanence level is influenced by the different conditions that exist at the time of learning as well as the conditions that interfere between learning and the teaching method used (Stan, 2015). Learning outcome is measured using an achievement test. Achievement test is an instrument developed at a specified grade level to test skills or knowledge learned. Most of the times, learning outcomes are the result of planned learning by training or instruction in the classroom (Basavanthappa, 2018). In the educational setup, as the main goal is to effect desirable improvements in learners, there is a need for the institution to have a practical means to quantitatively and qualitatively measure these improvements through a test of learning outcome. The learning outcome test naturally measures content mastery (Alias, 2005).

The test's validity and reliability must be established, these are two measures of quality of classroom test. Validity is the level to which a test evaluates what it was designed to assess, whereas reliability refers to the uniformity between two readings of the same test. A test may be highly reliable but not automatically valid, but usually a highly valid test is reliable (Black, 1999). It must also be standardized in order for the test to be valid, which means that a professional agency developed it, the test itself and the test conditions are the same for all. Standardized features include time limits, directions for testing, types of questions, technique for administration and uniform system for scoring. While the specific questions differ from one test version to another, the basic format should stay the same. Standardization increases the chances of performance discrepancies representing actual differences in what students know and a transition by offering the same criteria for all test takers (Nitko, 2001). Learning outcomes have three distinctive features: the learners '

specified action must be observable, the learners ' specified action must be measurable, and the learners must take the specified action.

There are two distinct types of learning outcome based on how the performance of students is evaluated, achievement tests may be norm referenced or criterion referenced. Individual performance is contrasted with the results of a large group of test takers, defined as the average band, in a norm-referenced test (NRT). Specific NRT tests, might be predicted, are more important when the category of norms is very close to the person being evaluated. Test scores can provide important insight on the capacities of a learner. NRT performance can be hard to understand, as statisticians compare scores using many terms. Each term reflects a slightly different way to show how an individual score is compared to the score of norm group members. The second type is the Criterion-referenced tests (CRT), which are more straightforward. As the criteria against which individual performance is evaluated, they examine the proficiency of specific knowledge or skills. A learner either knows or does not know the subject, this is known as "passing," "mastery," "meets yardstick." In addition, the performance of a student on a CRT is dependent on the performances of others. On a CRT, everyone in a group can pass by displaying proficiency of the material, whereas on an NRT higher and lower scores are ranked against each other, irrespective of how well or poorly the group on the whole has performed.

Test scores can provide valuable feedback on the abilities of the learners, which can help detect the strengths and weaknesses of the students. This information can be used to plan for future training by enhancing areas of keen interest and ability and reinforcing lagging areas. While tests do not address most aspects of life, they are powerful tools when used appropriately (Matthew, 2011).

As teachers take their student through the learning process, they need to assess if their teaching strategies are effective. Data on students understanding is needed so that the best measure of teaching that are most relevant can be determined. In fact, learners require feedback to be able to track their success in learning. Learning outcomes are statements that present important and necessary training that has been completed by learners and can

be demonstrated consistently at the end of a training programme. Thus, learning outcomes is the knowledge and skill learners acquire after going through a syllabus (Lesch, 2018).

2.7.1. Benefits of Using Learning Outcomes

For Students:

Learning outcomes concentrates on the learner. Well-written learning outcomes should provide accurate statements to learners about what is required from them. Students can use the findings to assess and direct their own progress, follow the direction of learning and decide how much help they need to seek. Evaluation at the end of the teaching / learning exercise is also important.

For instructors:

Certain processes that are part of the curriculum are controlled by learning outcomes. Outcomes aid in planning the instruction: they help break down the curriculum and the teaching methods so that educators choose constructive content / materials and experiences to assist in meeting the end result; they help achieve evaluation and re-evaluation; and they (should) correlate the course with the programme and curriculum (a set of outcomes should nest within the outcomes of the programme) (University of Texas, 2018).

2.8 Empirical Review

Numerous researches were conducted to increase the understanding of the relationship between SDL, didactic class lecture method and learning outcomes with a few of the studies in Nigeria. There is a level of relationship between autonomous learning and academic success. Hence, many schools now acknowledge that independent learning is effective in developing lifelong learners, including nurses, irrespective of if the learning occurs in the conventional learning setting or not.

Demographic Characteristics and Learners Self–Directed Learning Readiness Level

Dixon's (1992) exploratory study in Michigan on SDL readiness and pedagogical expectations revealed a direct connection between SDL preparedness and the age of the

study participants. This agrees with Eyer's (1993) results. The study assessed the autonomous learning attributes and views of 135 student nurses using OCLI. Morris (1995) also examined the association between SDL readiness and academic excellence. Frisby's (1991) likewise exposed a correlation between SDLRS marks and gender. Hanfold's (1991) research involving 53 nurses, however, did not indicate any weighty relationship with SDLRS and age. Alspach's (1991) study of some older student nurses 357 in all and 86 employees of a nursing programme indicated a positive link between the SDLRS as well as the faculty members' age. Kar, Premarajan, Ramalingam, Iswarya, Sujiv, and Subitha (2014) conducted a SDLRS analysis of MBBS students in an India institution. The study was conducted in a tertiary care teaching hospital to assess preparedness for self-directed learning of medical students in the fifth semester. Their findings confirmed that males were more willing to learn by themselves than females (P= 0.045). Phillips, Turnbull and He (2015) evaluated SDL readiness. Phillips and his colleagues focus was to examine the level of SDLRS amongst undergraduate nurses in training and to identify variation in SDLR rates with respect to academic year, previous qualifications, age and sex. The results of the study recommended that institutions of higher education should conclude that SDL capacity depends on age or duration of tertiary study. Said, Ghani, Khan and Kiramat (2015) analyzed readiness for independent learning among nurses in training in Peshawar, Pakistan at some Peshawar nursing institutions. Mean scores on overall scale was 153±25.2 where male students scored slightly higher (156.7±19.6) than their female counterparts (151±28.5).

Students with age from 18-20 scored higher (155.2±29.3) than those within 21- 24years as they scored 150.4±17.8. But these variations were not statistically significant. These results varies from that of Williams et al. (2012), who concluded that SDL readiness grows with advancement in age. El-Gilany and Abusaad's (2012) study, which examined Saudi nursing students ' self-directed learning readiness and learning styles, revealed that a significant percentage (77%) of study participants have high SDL readiness, of which the student demographics and learning style did not influence it. The disparity in mean values of various schools is weighty and reveals that SDL capacity may be dependent on the modes of teaching and learning setting. In 2016 Malekian, Ghiyasvandian, Cheraghi, and Hassanzadeh's study on the preparedness for the

autonomous self-directed learning for Iranian clinical nurses in relation with personal characteristics was revealing. The results of this study revealed that 162.50±14.11 (120–196) was the scores of their preparedness to engage in independent learning. The statistical correlation of SDLRS with age, gender, marital status, and university degree was not substantial.

Attitude of Nursing Students towards Self-Directed Learning

Al Furaikh, Al Omairi and Ganapathy (2017) conducted a cross-sectional survey on the attitude of student nurses to research at Nursing-A College, King Saud bin Abdulaziz University of Health Sciences, Al-Ahsa. The aim of the study was to examine the attitudes of undergraduate nursing students towards research as a course to establish consequences for the best practices in teaching/learning process. They observed that the overall attitude towards research was positive with a mean score (68.4 ± 6.580). Many participants (78%) found the study to be beneficial to the field of nursing. Sixty eight percent (68%) of nursing students expressed a positive attitude towards research, 61% indicated that research is a vital part of professional and personal life, while the largest proportion of students (71%) viewed research as a complex, challenging, frustrating topic and 64% recorded statistical difficulties. The results correlate with findings from another study conducted among undergraduate nursing students in Fujian province of China on independent learning preparedness and nursing expertise by Yang and Jiang (2014), who found that the students ' mean SDLR score was 148.55; standard deviation (SD18.46), implying an intermediate and upper SDLR. The nursing competence score was 142.31 (SD30.39), implying a midway nursing skills. SDLR had a strong and direct correlation with nursing capabilities. The association between SDLR and nursing expertise was strong and statistically significant: r (519) = 0.547, p= 0.00. There was also a substantial association between all subscales and overall SDLR. The overall SDLR was strongly associated with five sub-scale scores (critical thinking / research ability, leadership, interpersonal relationships, legal / ethical practice, and professional development), while total SDLR was moderately associated with clinical care and teaching-coaching. Therefore, teaching methods need to be adapted to promote SDL capacity.

Mei-hui (2008) observed in a study on issues affecting independent learning preparation among nursing students in Taiwan, that one of the improvements in teaching and learning strategies viewed by respondents was the more regular use of student-driven training strategies, where learners are expected to take charge of their learning obligations. Participants also identified many issues affecting results of the training programmes; which include interaction between tutor and learner, facilitation of learning and relevant resources. It is assumed that a child's educational preparedness goes a long way in shaping the person's learning ability through age development. This implies that in post-secondary school the form of academic instruction obtained at secondary school can affect the learning ability of the student. Simelane, Kunene and Mhlongo (1997) also conducted a study of student nurses ' attitudes towards the seminar teaching method. A survey was conducted among twenty-five third and fourth year student nurses. The data collection tool was a questionnaire. It is evident from the analysis that: there are negative attitudes towards the seminar teaching method, in spite of students' awareness of its contribution to autonomous learning. Most of the basic nursing program's student nurses are teenagers who dislike any time consuming educational effort that interferes with their private lives. Lack of correlation between high school and nursing school's teaching approaches lead to poor adaptation to the seminar model as a student-centered, independent learning process. Library services were insufficient, making it more difficult and time-consuming for nursing students to find suitable educational material for planning and preparation of quality presentations.

Learning Style Preferences among Nursing Students

Premkumar et.al., (2018) in an investigation on Indian medical students ' self-directed learning readiness: a mixed method study found that students preferred the traditional teaching method, both lecturers and students identified that preschooling, education background and student's context affects their way of study. Mostly, students use the traditional didactic learning strategy.

The students therefore presume they should be 'spoon-fed ', which will discourage independent learning. Educators reported disruptions in SDL as a result of modern technology and unnecessary socializing. Alharbi et.al., (2017) carried out an investigation

on the knowledge acquisition choices of student nurses in Saudi at King Saud University; findings from the cross-sectional survey did not establish an association between gender and learning preferences. Academic achievements were criteria used in the survey to divide students into two subdivisions: excellent academic performance with a GPA of between four to five and low performance with a GPA less than four. The investigation showed that participants' academic perfomance is not connected to their learning choices. Furthermore, degrees obtained beforehand and learning choices were not related. However, a significant link was observed between employment status and learning choices ($p= 0.022$).

Similarly, a strong relationship was observed between working hours per week and learning choices ($p= 0.003$); this is the same as Hallin's findings (2014), in a Swedish University. Who examined learning style preferences of student nurses and came up with the following findings: A greater number of the students were 'flexible' in their learning style preferences and had none or few strong preferences. Students with strong preferences, preferred high structure (75%) and an authority figure present (40%). Approximately one-third of the participants were strongly auditory, tactile and/or kinesthetic, while 8% were extremely visual. There were few significant differences between campus groups and semester groups or between the preferences of learning style and the experience of upper secondary school. There were no significant differences between the learning style preferences and age. Highly motivated, visual, sensory, kinesthetic and preferred structure and mobility were more women than men.

In addition, Kharb, Samanta, Jindal and Singh (2013) conducted a study on 100 level student doctors' on learning styles and preferred teaching-learning strategies at SMS & R, Sharda University, India. Findings from the study indicated that more female students chose the auditory mode of learning style than the males; whereas more male students preferred the kinesthetic mode (p value < 0.05).

Specific teaching-learning approaches such as explicit training methods (readings and demonstrations); immersive guidance methods (tutorials); innovative learning methods (practical or dissection) and independent study methods (self-study) all these learning

strategies are used in the first year of the scientific education to convey and gain basic science skills. Practical /dissections (39%), then lectures (32%); self-study (18%) and tutorials (11%) were the most preferred teaching-learning approach among all learners. The second most favored teaching-learning approach among female students was lecturing, whereas practical / dissections followed by self-study were the choices made by male students. They reached the conclusion that for each student or even for most students, a single strategy to teaching does not work. The understanding of the teachers about the students ' different learning styles and their attempts to match the ways of teaching and learning will help to create an effective learning atmosphere for all learners.

Self-directed Learning and Academic Performance

Many studies in self-directed learning and academic performance have been conducted in various disciplines of life, including nursing. Khiat (2017) in a study on academic performance and SDL practice: the perspective of adult students examined SDL learning features innate in the matured knowledge seeker in a higher academic institution. In addition, he explored the link between the reported proficiency degree of SDL skills of adult students and their academic performance. An open-ended instrument and Likert-type scale was used to elicit information from 1695 learners who took part in the survey. Some (11) indicators of knowledge seeking independence postulated as well as measured were evolving learning objectives, time and delay administration, task and examination preparation, writing skills, research competence, ability to discuss intelligently and IT skill, online class preparedness and pressure management. Results showed that self-reported competence of adult students in the learning indicators had an impact on the outcomes of learning. Using the discoveries from the study, the higher institution studied by Khiat evolved several novel ingenuities in offering self-reliant learning support to assist the adult students in their studies to do well. The conclusions are the same as those of Zanjani, Ajam, and Badnava, (2017). The correlational study which focused on all Masters Students and 200 Nurses of the Gonabad University of Medical Sciences revealed that there is no significant difference between the various dimensions of male and female students ' self-directed learning readiness ($P>0.05$). In addition, readiness for self-directed learning has a significant relationship with electronic learning and academic

progress (P<0.01). Self-directed learning readiness is also an effective indicator of university students' adoption of online education and academic progress.

In addition, Edmondson, Boyer and Artis, (2012) examined the relationship between independent knowledge acquisition and fufilment, ambition, academic excellence, genuity, and inquisitiveness. The results indicate that independent learning is directly and significantly related to academic excellence (r=.15, p <.001), career motivation (r=.13, p <.001), imagination (r=.25, p <.001), interest (r=.40, p <.01), and life satisfaction (r=.35, p <.001).

The study outcome demonstrated that independent learning is an important concept and should be adopted fully in nursing education. Deyo, Hynn, Sturpe, and Kisher (2011) studied the preparation for self-directed learning and academic performance in a laboratory skills curriculum and came to the conclusion that preparedness for SDL is consistent with self-directed learning patterns, which may not be the prerequisite basic knowledge if specific directions were given to students on how to acquire knowledge. Yang and Jiang (2014) studied self-directed learning readiness and nursing competence among undergraduate nursing students in Fujian province of China, the study findings showed that nursing students' SDLR score was 148.55 (standard deviation (SD) 18.46), suggesting transitional or upper SDLR. The mean nursing competence was 142.31 (SD30.39), which suggests medium nursing abilities. SDLR had a direct substantial and weighty relationship with nursing competence and is in accordance with the results of Morris (1995), who conducted research on 157 randomly selected past and present students from non-traditional graduate business schools to investigate the correlation between SDLR and graduate academic achievement. He found a relationship between SDLR and academic achievement, and the results showed that SDLRS scores were also correlated with gender, and Darmayanti (1994) performed a survey of 272 graduate students at Chiang Mai University's Nursing Faculty to determine whether there is a connection between SDLR and their academic progress, assessed by a demographic data questionnaire. Results showed a positive relationship in a traditional classroom setting between SDLR and academic success. Findingss across disciplines regarding self-directed training and learning performance has been constant over the years. The results showed a

positive impact. If this concept is to be applied to nursing, nurse educators would have to adopt educational approaches and initiatives that can improve the student's autonomous learning experience, and thus promote academic performance of nurses in training. With the above literature review and findings, the outcomes of independent learning experience and didactic teaching nursing institutions in Southwestern Nigeria need to be studied to see which would yield a better outcome in nursing training.

2.9. Theoretical Framework

The theory adapted and used in this study is the Personal Responsibility Orientation (PRO) Model (Brockett and Hiemstra, 1991). This was used to develop the theoretical framework. It emphasized individual taking responsibility of his or her learning to display the relationship between the variables and the anticipated study outcome in a conceptual framework.

The "Personal Responsibility Orientation" (PRO) Model

This model was developed by (Brockett and Hiemstra, 1991) to explain the concept of self-direction in learning as containing both self-directed learning (instructional method processes) and individual personality traits (learner self-direction). The model differentiated between these two concepts and recognised that the two concept were closely related to a broader base on self-direction. Personal Responsibility Orientation (PRO) model of self-direction in mature knowledge seekers was intended to identify the variations and connections between independent learning (SDL) as a form of teaching and learner self-reliant or direction as a characteristic of personality.

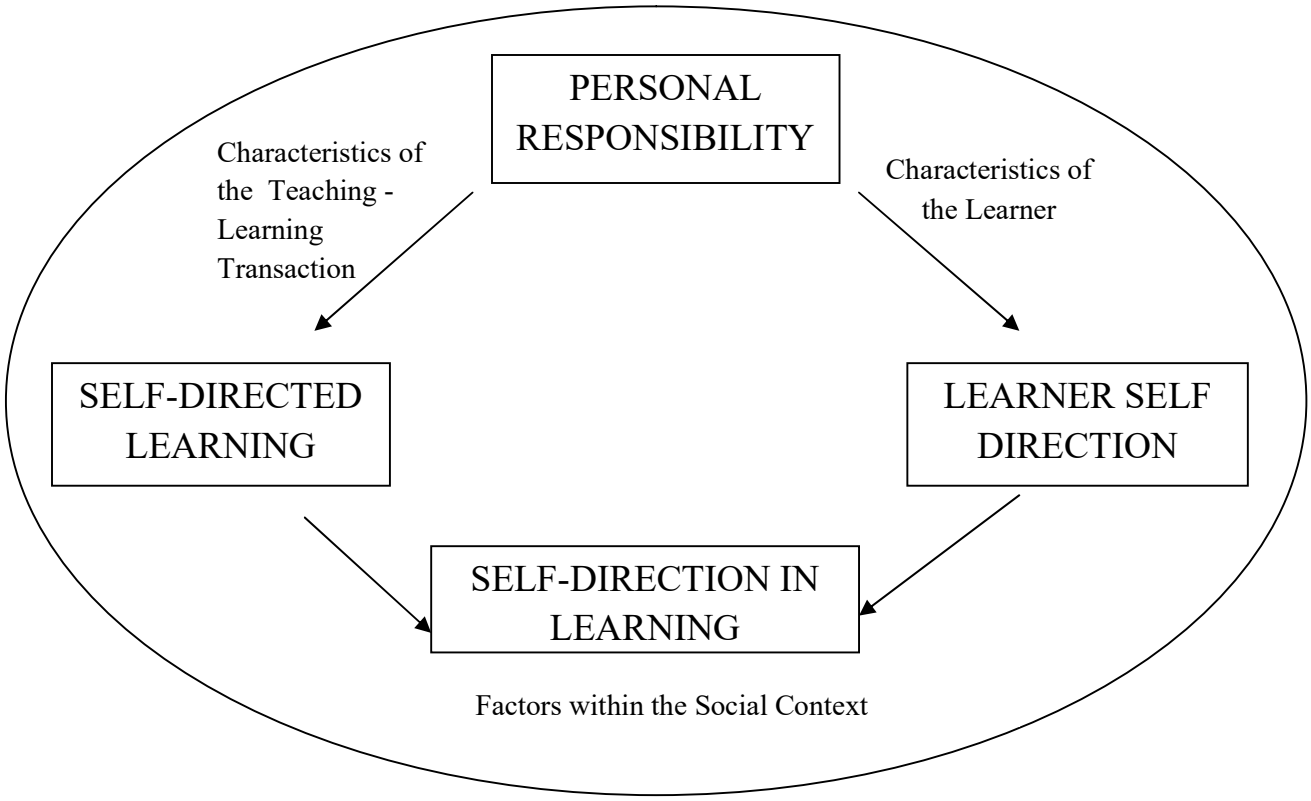

Fig. 2.2: Personal Responsibility Orientation (PRO) Model (Brockett and Hiemstra, 1991)

The PRO Model: a Framework for Understanding Self-direction in Adult Learning

Personal Responsibility as a Central Concept

The notion of personal responsibility is the starting point for understanding self-direction in adult learning. It means that people take ownership of their own thoughts and actions. The skill and/or desire of persons to take control of their own learning are what defined their capacity for self-direction within the scope of learning. It means that the learner believes in his or her ability to learn independently and is able to substantiate the notion of personal accountability for education.

Personal responsibility in learning can also be viewed in relation to the idea of autonomy, this implies that an individual is able to set the learning guidelines and can select the learning standards to adopt. This implies that independence or autonomy is the capability to be able to align learning values and make good choice in accordance with self-realisation. Self-directed learning implies the ability to take reponsibility because of one's level of maturity and freedom from all external rules and limitations (Chene, 1983). This allows mature learners to display diverse level of preparedness regarding their responsibilities to seek or acquire knowledge. The students must be empowered to make their own educational choices through self-directed training (Song and Bonk, 2016). Nonetheless, if it is important in adult education to be independent, then, tasks for educators is to help mature learners become more and more capable of taking charge of their own learning. PRO's idea of personal responsibility implies that knowledge seekers can decide the instructions they follow as learners; which is accompanied by the duty to recognise the implications of one's views and duties as a an autonomous learner (Brockett and Hiemstra, 1991).

The Process Orientation of Self-Directed Learning

Self-directed learning is a technique used to impact knowledge which borders the undertakings of organisation, executing, and assessing learning. From this viewpoint (e.g., Knowles, 1975; Tough, 1979), previous studies on independent and self-structured training were conducted. Self-directed learning concepts emphasised this process orientation, which is defined as individualising the learning process (Ramnarayan and Hande, 2008).

The practice of self-direction in adult learning is based on teaching-learning transaction dynamics which involve issues external to the person when contemplating this dimension of self-direction. Needs evaluation, learning materials, mediator responsibility and abilities, and independent study are just a few of the constructs within the self-directed learning domain. This concept of independent learning has been shown as an educational process in areas such as human resource development, continuing professional education, graduate and undergraduate study, and community education.

Learner Self-Direction (Personal Orientation)

The author of this model has also generally emphasised the importance of recognising the traits of successful self-directed learners. He outlined many ideas that underline the theory of andragogy as a model to help adults learn. The first of these assumptions was that adult learners ' self-concept is characterized by self-direction, while the child's self-concept is characterized by dependence. Knowles (1980) revised this view of pedagogy and andragogy from a dichotomy to a continuum. His focus on self-concept, however, illustrates individual's major role as a major part of self-directed learning. The learner's personality traits or internal factors is what is referred to as personal orientation of the learner. Hence, self-direction of learners refers to an individual's characteristic that tends to lead one to assume primary responsibility for personal learning efforts.

Self-Direction in Learning as the Vital Link

In education, the term Self-direction is used as a broad definition to identify external factors that learners employ to take primary responsibility for scheduling, initiating and assessing training and the inner variables and personality traits which make them responsible and accountable for their thoughts and actions as learners. The PRO model illustrates the point of departure between the external and internal factors. It recognizes that there is a strong link between self-directed learning and learner self-direction through the notion of personal responsibility. This relationship is a guide to comprehending the efficacy of self-direction in a specific learning perspective. It is possible to view both the internal and external aspects of self-direction on a continuum. Therefore, a given learning situation will fit somewhere within a range relative to the possibilities for self-directed learning and likewise, the level of self-directedness of a person would lie somewhere within the same range of possible levels The notion that high self-direction or reliance as

an ideal in most knowledge seeking venture is aligned with the concept of self-direction as a continuum (Ramnarayan and Hande, 2005). Due to the disparity in the goal of learning and the knowledge acquisition styles, promoting SDL as the preeminent approach to acquire knowledge, alternatively may take some time. However, it is better conceived as an optimal way of acquiring knowledge by individuals and in certain situations. (Brockett and Hiemstra 1991). This is a point where the concepts of SDL and learner self-direction are linked. For instance, there is an assumption that if the level of autonomous learning is influenced by the capacity to learn in a given setting, then learning will occur. If a knowledge seeker who has a high level of self-reliance is involved in a knowledge seeking process that actively stimulates self-management and control, the chances of excelling in learning self-direction will be high. Similarly, when an instructor's role is key, the knowledge seeker who may not be vast in self-directedness could find satisfaction and a higher likelihood of excelling in learning. The probability of success in both cases is relatively high, as the expectations of the learner are consistent with the learning situation conditions (Ramnarayan and Hande 2005). They further elaborated that difficulties and frustrations arise when the balance between the learner's internal characteristics is not in harmony with the characteristics of the teaching-learning transactions. Therefore, there is a high probability for learners with a clear understanding of how they intend to approach the learning process to be disappointed if there are constraints that hinder them from making the desired progress.

This is similar to what happens in an instruction setting that is instructor-oriented or lead, knowledge seekers who hope for a dynamic level of supervision will probably feel the same way. Knowledge seekers in the two situations are faced with the challenge of disharmony between the knowledge acquisition method and their learning requirements or needs and their desires. This does not mean the learner was incompetent, or the implication of this is that success or effectiveness in the teaching-learning venture is dependent on clarification of learning requirement or needs as well as the desire of both parties (instructors and learners).

The PRO Model infers that self-reliance in learning, presents the idea that independent learning is present in all students at a level, whether high or low. What is however of

utmost importance, is taking into consideration the learning environment which is likely to influence the knowledge seekers passion to acquire knowledge using a particular learning or instruction procedure.

The Social Context for Self-Direction in Learning

The PRO model's final element is represented by the circle that includes the other elements. These elements are characteristics of individual learner control over learning, planning, conducting and evaluation, the importance of learning networks and informal learning exchanges that can be called the social context. In the PRO model, the individual learner is central to the idea of self-direction. Such learning actions, however, cannot be separated from the social context in which they take place. To better understand the impact of self-direction, both as a form of teaching and as a trait of personality, it is important to consider the social environment in which such behavior happens (Ramnarayan and Hande 2005). Related to the social context are the political implications of self-direction in learning. Therefore, while the participant is the starting point of interpreting self-direction in adult learning, the social context establishes the domain where self-direction behavior is conducted. The personal orientation model alone cannot explain the implication of autonomous learning without considering the individual's personality characteristics, which define the individual learning style. Among all the theories / models that spoke about the experiential learning style, Kolb's experiential theory of learning can be applied to provide an in-depth knowledge of how to promote independent learning among mature learners. To achieve the best during the training of nursing students, nurse educators are often urged to diversify their teaching methods on the basis of recent technological advances and student learning styles (Lauver, West, Campbell, Herrold, and Wood, 2009; WHO, 2016).

2.9.1 Application of the Personal Responsibility Orientation Model to the Study

A framework for understanding self-direction in adult learning is the Personal Responsibility Orientation Model. It has four elements: personal responsibility, which is the core concept that defines the student as taking responsibility and accepting the outcomes of his thoughts and actions as a learner; process orientation, which focuses on

training, planning, execution and evaluation activities; learner self-direction which is about the importance of understanding characteristics of successful self-directed learner and the social context which is represented by the circle encompassing the other elements. Such components are characteristics of individual learner autonomy over the planning, conduct and evaluation of learning, the value of communication networks and informal learning exchanges which can be referred to as the social context.

The nursing students who are self-directed learning inclined or who are being assisted by a facilitator along the self-directed learning continuum to become lifelong learners as professionals are introduced to the intervention. This was teaching the nursing students using the self-directed learning strategy and normal class didactic lecture method. They can be influenced by their personal characteristics as learners which include: ability to be an independent learner, manage self effectively, have a curiosity for learning with problem solving ability in addition to the previous experience from the type of secondary school attended and his/her self-directed learning readiness level to display an outcome which shows a preference for SDL and a test value of 50% and above at post intervention. Nevertheless, this can be affected by the social milieu under which the teaching/learning process was taking place. What is considered as the social milieu include: learning networks and informal learning exchanges in addition to other influencing factors such as number of teachers in each school; the dominant teaching method in the schools, type of examination questions the learners are exposed to, availability of internet access in the school; modern library with e-library and current textbooks; workload in the school and the nursing students going for clinical posting to enhance acquisition of expert nursing skills.

CONCEPTUAL FRAMEWORK

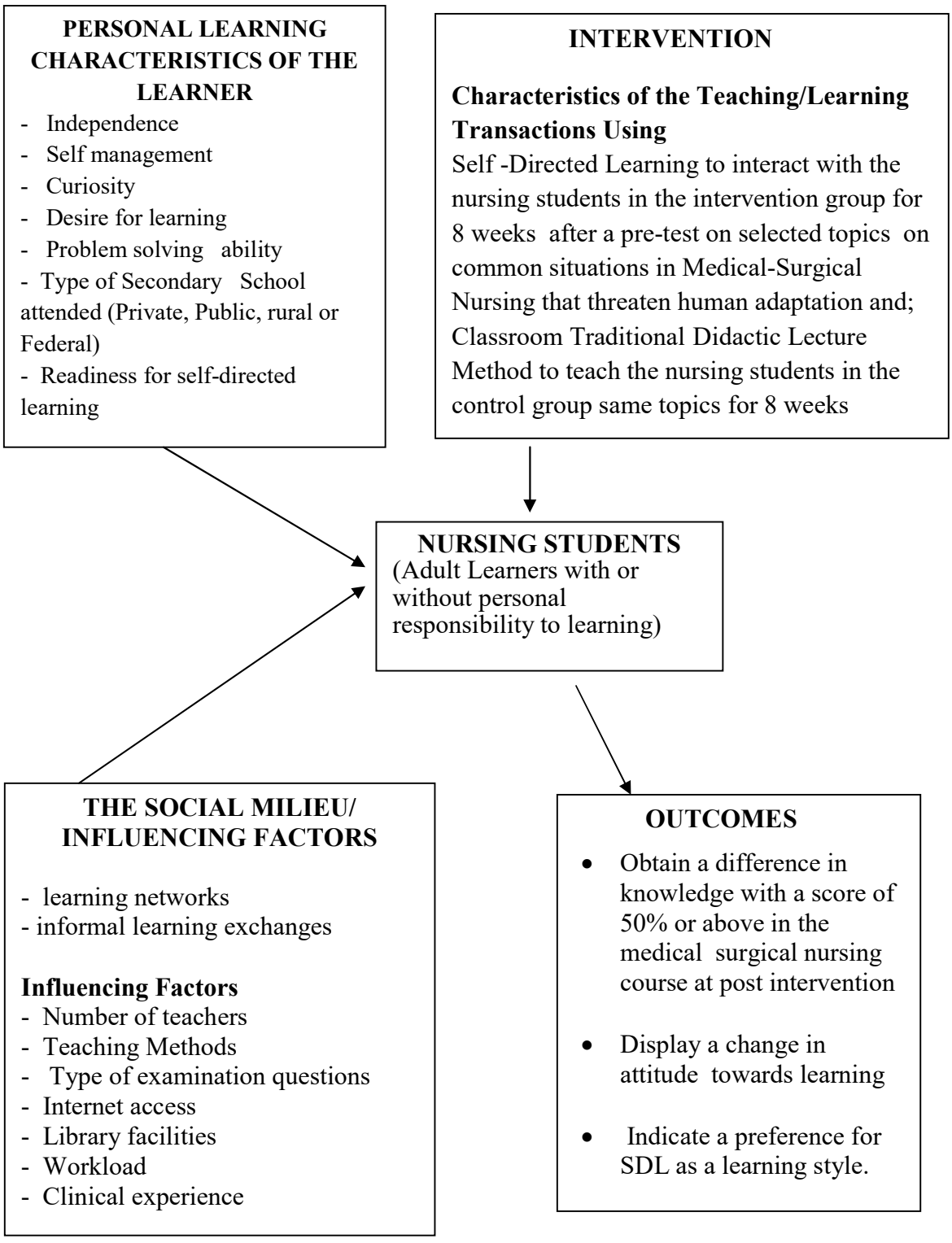

Figure 2.4: Conceptual Framework developed by the Researcher from: Personal Responsibility Orientation Theory

2.9.2 Conceptual Framework

The conceptual framework was developed using concepts from theories of personal responsibility orientation model. The conceptual framework tries to explain the relationship between the variables central to this study on outcomes of SDL and didactic classroom teaching methods. The nurse educator has the responsibility of ensuring that autonomous learning is fully adopted as an additional knowledge acquisition approach in schools of nursing.

Personal Learning Characteristics of the Learner: These include the nursing students' ability to have independent studies, self-management and curiosity, have desire for learning with a problem solving ability while being influenced by the type of secondary schools they attended (private, public or rural) and their preparedness for SDL to be lifelong learners after their training as nurses. On the other hand, this can be influenced by variables like age and gender as it is adjudged that independent learning is a knowledge seeking approach for adults.

The Social Milieu/ Influencing Factors: The social milieu encompasses the other elements like individuals taking charge of the organisation, conduct and evaluation of learning. The ability of the nursing students to interact and form learning networks exchanging learning information. Since learning tasks or assignment cannot be divorced from the social settings where they take place, the environment in which the teaching/ learning activity is played out should be conducive to learning. This can be ensured by providing and making accessible necessary facilities for learning such as free internet connectivity, a rich modern library, the student centered teaching/learning as the dominant teaching strategy in the school, workload and students' exposure to clinical experience to mention a few. These also influence the outcomes of teaching/learning in schools nursing.

Intervention: These are measures instituted to achieve the desired goal of the study intervention in this study. They are prescribed during the period of study to meet identified needs of the nursing students. Self -Directed Learning was utilised to interact with the nursing students in the intervention group for 8 weeks. This was done after a pre-

test on selected topics on common situations in medical-surgical nursing that threaten human adaptation and Classroom Traditional Didactic Lecture Method was utilised to teach the nursing students in the control group same topics by employed research assistants who are nurse educators for 8 weeks in their respective schools.

Outcomes: If the intervention was effective, then the nursing students would obtain a difference in knowledge with a score of 50% or above at post intervention, display a change in disposition to self-directed learning and indicate a preference for autonomous knowledge acquisition techniques. Finally, the nursing student who adopts the independent learning strategy would become a lifelong learning professional and can remain relevant and productive in the health –related field or profession.

2.10 Null Hypotheses

The null hypotheses tested are listed as follows:

$H_0$1: There is no significant difference between nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention and control groups at pre and post-intervention.

$H_0$2: There is no significant difference between nursing students' attitude towards self-directed learning in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

$H_0$3 There is no significant difference between nursing students' attitude to learning, and their knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

$H_0$4: There is no significant difference in the nursing students' preferred learning strategy in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

$H_0$5: There is no significant difference between the nursing students' preferred learning strategy and their knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention and control groups at pre and post-intervention.

$H_0$6: There is no significant relationship between selected variables (Age, Type of secondary school attended and Gender) and preferred learning strategy in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

$H_0$7: There is no significant relationship between influencing factors and preferred learning strategy in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

CHAPTER THREE

RESEARCH METHOD

3.0 The research method utilized in the study was discussed in this chapter.

Outline

- Study design
- Study area
- Selection of Schools
- The Study Population
- The Sample Size Estimation
- Sampling Technique
- The Validity of the study Instruments
- The Reliability of the Instruments
- Ethical Approval
- Data Collection Procedure
- Procedure for Data Analysis

3.1 Study Design

The intervention study adopted the quasi experimental design to assess outcomes of Self-Directed Learning and Traditional Didactic Lecture-Based Method among Nursing Students in Southwestern Nigeria. The design included intervention and control groups.

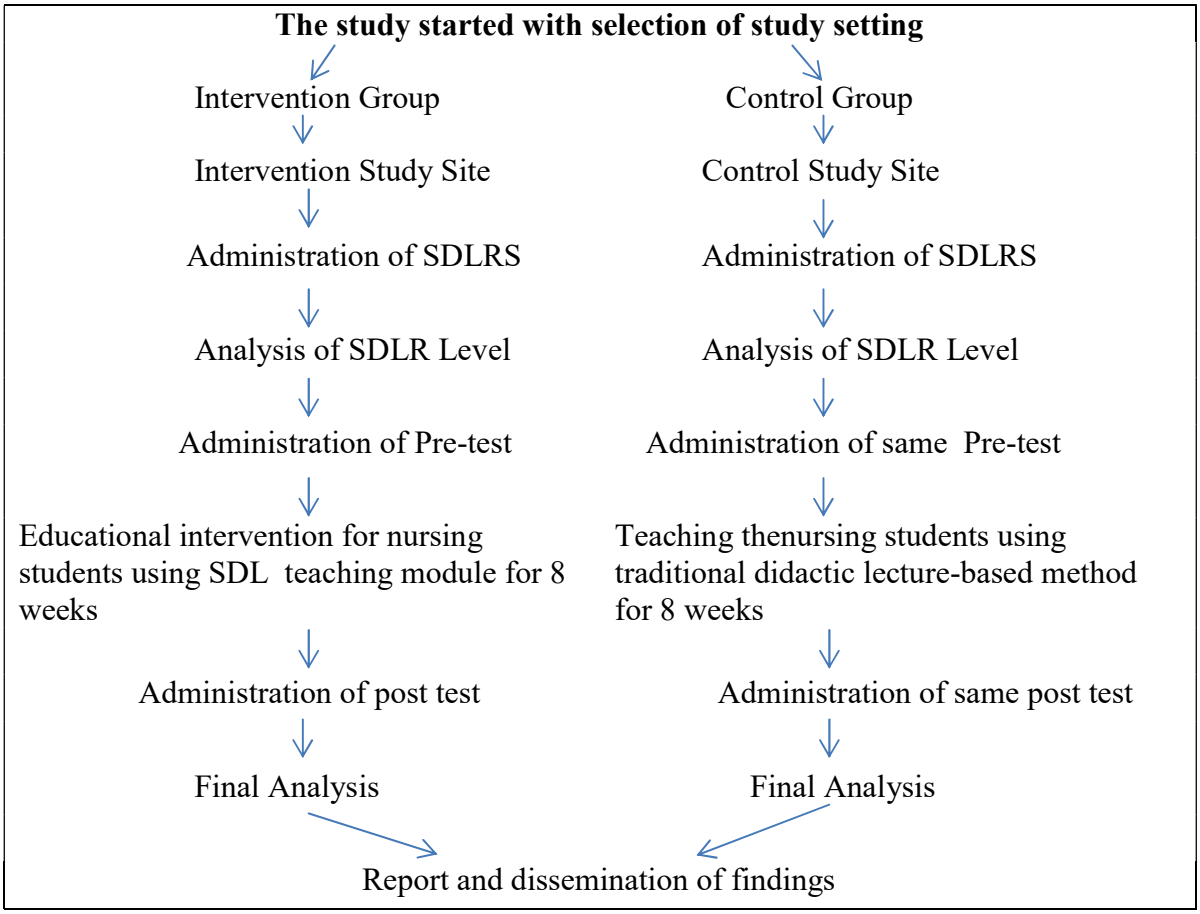

Figure 3.1: Study Design Flow Chart

3.1.1 Variables in the Study

The following variables were involved in the study

Independent variables – treatment operated at two levels

Self-directed learning

Traditional Didactic Lecture-Based Method (Control)

Dependent variable – These were the anticipated outcomes from the learners at the end of the study:

- Obtain a difference in knowledge with a score of 50% or above in the medical surgical nursing course at post-intervention.
- Display a change in attitude towards learning
- Indicate a preference for SDL as a learning style.

3.2 Study Area

The study area was the Southwestern zone of Nigeria. Southwestern zone is one of the six geopolitical zones in Nigeria which is made of six states. The states are Ondo, Osun, Ekiti, Lagos, Ogun, and Oyo. The predominant language of communication is Yoruba. The weather conditions vary from one season to another in Nigeria; the rainy season (March-November) to the dry season (November-February). The region has many secondary and tertiary schools, as well as the primary schools. This demonstrates that the Western States of the federation promote education. The region also has twenty-two (22) accredited nursing schools providing basic training in nursing education.

3.2.1 Sampling

The study carried out in four nursing schools, randomly selected from the 22 accredited nursing schools in Southwestern Nigeria. All the six (6) states in this zone were listed which include: Lagos, Ekiti, Oyo, Osun, Ondo and, Ogun states. Using the simple random sampling technique (balloting), three states were selected which were Oyo, Osun and Ogun States. Sixteen (16) accredited nursing schools in the three (3) selected states were enumerated; using cluster sampling technique four were university based training institutions while twelve were hospital based nursing training institutions. Using the

simple random sampling technique (balloting) again four (4) schools were chosen. Two of them were hospital based institutions: Ogun State School of Nursing, Ijebu-Ode and School of Nursing, Sacred Heart Hospital, Lantoro, Abeokuta. The other two were university based institutions: Department of Nursing, University of Ibadan and Department of Nursing Science, Obafemi Awolowo University, Ile Ife.

The choice of schools of nursing included in the study was informed as they are all accredited by the nursing regulatory authority in Nigeria due to availability of: physical structure with more than five classrooms, school buses, an auditorium, adequate competent tutorial and non-tutorial staff, a well-equipped nursing laboratory, a science laboratory, computer laboratory with internet connectivity, a well-equipped current library, internet connectivity in the school etc. In addition, type of school, that is, university or hospital-based training was also considered. Two Schools were randomly assigned to the experimental group while the other two schools of nursing were used as the control group. This was done by the toss of a coin. Using the year of exposure to medical-surgical nursing as the selection criteria, 200 or 300 level nursing students were purposefully enrolled for the experiment from each selected nursing school.

3.2.2 The Selected Schools of Nursing

Ogun State School of Nursing, Ijebu-Ode

The School of Nursing, Ijebu Ode which is owned by the Ogun State Government is located along Oguntuga Street, Off Omo-owo Street, Ijebu Ode, in Ogun, State Nigeria. It started training in January, 1949 with three (3) students. In 1971, the school was closed down by the Nursing and Midwifery Council of Nigeria and was later re-opened at the creation of Ogun State in 1976. The mission of the school is to provide a standardised educational programme that will enable the production of a competent nursing graduate who can provide quality health care services and capable of functioning in any medical environment. Students of the school go for their clinical experience at the General hospital Ijebu Ode. There are fifteen (15) teachers and a total number of eighty five (85) students in the school out of which forty three (43) students were in 200level (Second year) as at the time of this data collection.

School of Nursing Sacred Heart Hospital, Lantoro, Abeokuta

School of Nursing, Sacred Heart Hospital, Lantoro, Abeokuta was established by the Catholic Diocese of Abeokuta. The school started operating in 1988, total number of 319 students have been trained by the school and registered with the Nursing and Midwifery Council of Nigeria. There were fifteen (15) teachers and a total number of one hundred and fifty eight (158) students in the school out of which forty nine (49) students were in their second year when the data was collected. The students made use of Sacred Heart Hospital, Lantoro Abeokuta as their clinical experience hospital.

Department of Nursing, University of Ibadan

The Department of Nursing, College of Medicine, Faculty of Clinical Sciences, University of Ibadan was established based on a recommendation by the World Health Organization study team in 1964. This recommendation was accepted by the Federal Government that a three year Post Basic BSc Nursing degree programme for Africa be established at the University of Ibadan with the assistance of the WHO and UNICEF. The three- year Post Basic degree programme was to prepare nurse educators and nurse administrators of a high academic standard and to initiate and conduct research in nursing. On the acceptance of this recommendation the programme became the first of its kind in Africa, South of the Sahara.

The first set of students was admitted in 1965 and graduated in 1968. In 1970 the University, which is a Federal Government university assumed responsibility for the department. The three years B.Sc degree programme was changed to the present five- year BNSC degree in 1995 as a response to the instruction of the Universities Commission that candidate with relevant qualifications be admitted to the five –year programme straight from secondary school. The first class of BNSc was admitted in 1995 /1996 session.

The department had ten (10) lecturers, two clinical instructors and four administrative staff with 141 students out of which twenty (28) were in 200 level when this data was collected. Students from the Department of Nursing go to University College Hospital for clinical posting and ward experience.

Department of Nursing Science, Obafemi Awolowo University, Ile Ife

The Department of Nursing Science, Obafemi Awolowo University's bachelor's degree in nursing was established in 1973. The programme was updated in 1982 and 1990. The National University Commission (NUC) granted full accreditation in 1991 as they met the NUC minimum standard for a professional degree. The Department of Nursing Science is currently equipped to provide general, liberal and specialized training for both undergraduates (B.N.Sc.) and postgraduate (M.Sc. and Ph.D. in Nursing). The products of the school are versatile individuals equipped with great nursing skills to function effectively in various settings, therapeutically assisting individuals, families and communities with various backgrounds and health issues. The nursing students go to OAU Teaching Hospital, Ile Ife for their clinical experience. There were fifteen (15) teachers and eighty-two (82) students in the school at 300level (third year) during the time of this data collection.

3.3 Population of the Study

3.3.1 Target Population

The target population were all nursing students of mixed gender; age and educational background undergoing training in various Schools of Nursing under the Federal Government, State owned Schools of Nursing and those under different Religious Missions in the Southwestern Nigeria.

3.3.2 Study Population

These include one hundred and twenty (120) 200 level student nurses and eighty two (82) 300 level student nurses making a total of two hundred and two (202) student nurses from four selected Schools of Nursing under the Federal Government, State owned Schools of Nursing and those under different Religious Missions who fell within the inclusion criteria in the Southwestern Nigeria.

3.3.3 Inclusion Criteria

Nursing students in 200 or 300 level in the four selected schools of nursing offering General Nursing programme who came into the school through JAMB examination were

included in the study. The student nurses were met at the beginning of the Basic University academic year before any exposure or introduction to Medical-Surgical Nursing course to prevent contamination.

3.3.4 Exclusion Criteria

Nurses in distant learning nursing programmes with post-basic skills as well as direct entry students were excluded as they are already experienced. Also, 100 level students were excluded because they offer primarily general courses in science and have no exposure to medical-surgical nursing in the first-year nursing curriculum. The 400 and 500 level students were also excluded because of exposure to courses in medical-surgical nursing and may be familiar with the selected topics.

3.4 Sampling Techniques

The participants for the study were selected using purposive sampling technique. The criteria for inclusion in the study was based on all second and third year students enrolled and studying at the four chosen nursing schools, based on the year they were first exposed to medical-surgical nursing in their curriculum. A total of two hundred and two (202) student nurses were purposively selected. As submitted by Suresh and Chandrashekara (2012), defining the right sample size for a study, guarantees a sufficient power to detect statistical significance and that power increases consistently as the sample size for the study rises. There were also a lot for the nursing students to gain from the treatment; therefore, all the student nurses who were available were included in the study.

Stage 1. The purposive sampling method was used to nominate schools in the Southwestern part of Nigeria that were homogeneously related.

Stage 2. All the six (6) states in this zone were listed which included: Lagos, Ekiti, Oyo, Osun, Ondo and, Ogun states. Using the simple random sampling technique (balloting), three states were selected which were Oyo, Osun and Ogun States.

Stage 3. Accredited nursing schools in the three (3) States (16 of them) were enumerated. Four of the schools were university based Nursing training institutions while twelve schools were hospital based schools of nursing. From the two groups (Hospital based

schools of Nursing and University based Nursing Training Institutions) the ballot system was used to select four (4) Schools of Nursing, two from each group.

Stage 4. Two Schools were randomly assigned to intervention group while the other two schools of nursing became control group. This was achieved by the toss of the coin. The schools were put into two categories according to the type of school (Two Federal Government University based schools and two hospital based nursing schools respectively). The schools in each category were assigned numbers; one and two for the two categories of schools.

In determining the intervention group, a coin was tossed and it landed with the head. Therefore the head of the coin was taken as representing the intervention group while the tail represented control group in each category of the schools. A coin with one side marked head and the opposite side marked as the tail was tossed, when the coin landed it was with the head facing up, then the school with number one in that category was considered to be among the intervention schools and automatically the other school numbered two in the same category fell under the control group. But when the coin landed with the tail side up, the school numbered one in that category fell under control group while the school numbered two in that category went under intervention group. This was done for the two categories of schools.

The schools of nursing in the intervention group were: School of Nursing, Sacred Heart Hospital, Lantoro Abeokuta, Ogun State (hospital based school of nursing), Department of Nursing, UI, Ibadan, Oyo State (Federally owned university based school of nursing training). However, School of Nursing, Ijebu-Ode, Ogun State (hospital based school of nursing) and Department of Nursing Sciences, OAU, Ile Ife, Osun State (Federally owned university based school of nursing training) fell under the control group.

Stage 5. Using the students' year of exposure to medical-surgical nursing during their training, 200 or 300 level nursing students were purposely selected from each selected nursing school. The nurses were met at the beginning of the academic year before any exposure or introduction to medical-surgical nursing course to prevent contamination.

3.5 Instrument Development

A letter was written seeking for permission from Gugliemino Associates to use the SDLRS (Guglielmino, 2008) to assess for the nursing students' preparedness for independent learning, permission was granted and the instrument was paid for before the commencement of the study. This was used to develop the teaching module and plan the intervention exercise for the study.

The study utilised the Guglielmino's (2008) SDLRS which comprises of 58 items with responses on a five-point Likert scale. It is structured to determine individual attitudes, beliefs, skills and characteristics that are representative of self-direction in learning. This scale was adapted and modified and put under five themes to assess the nursing students' preference for independent study and attitude to learning which covers self-management, curiosity, desire for learning and problem solving. The instrument comprises three parts as follows:

Section A: a 5- item part to elicit information about respondents' socio-demographic characteristics.

Section B: with 58 items designed to assess nursing students' SDLRS for the development of the teaching module. Also modified and put under 5 themes to assess the nursing students' preferred learning strategy and attitude towards learning.

Section C, a 10- item Likert scale questionnaire designed from literature reviewed to identify factors influencing the choice of learning strategy among the nursing students.

A pre and post-test with fifty items multiple choice questions in medical-surgical nursing to assess learning outcomes in the three domains of learning.

The treatment which was made up of one (1) adapted and modified teaching module for self- directed learning interaction (self-directed learning training module).

3.5.1. Validity of Instrument

The researcher ensured that the required items needed to meet the goals of the investigation were included in the data collection tool. It was then presented to the supervisor and research experts, including statisticians; their inputs were incorporated into the instrument. This made it possible to ascertain whether the content of the instrument

was appropriate enough to assess the issues under investigation. Also the instrument was administered to fifty 200 level nursing students in Ladoke Akintola University of Technology (LAUTECH) Ogbomoso, which is similar to the study population but was not used for the study. The results obtained were useful in modifying the questionnaire before the final study was launched.

3.5.2 Reliability of Instruments

Cronbach Alpha of 0.87 was obtained for the internal reliability of the 58-item scale used. Previous research studies on different populations reported reliability values between 0.72 and 0.92 (Wiley, 1981, Finestone 1984, Brockett, 1987; Field, 1989; Guglielmino and Guglielmino, 1991 Straka and Hinz, 1996) to mention a few. The SDLRS is by far the most popular quantitative instrument in the study of self-directed learning (Merriam, Caffarella and Baumgartner, 2007).

Due to the modification, all sections A, B, and C of the instrument was tested by using the test retest method in Ladoke Akintola University of Technology (LAUTECH) Ogbomoso among fifty 200 level nursing students, who were not among the study population. The second test was administered four weeks after the first one. Statistical Package for Social Sciences (SPSS) version 22 was deployed to analyse the data collected. To ensure the internal reliability of the instrument, the statistical reliability analysis was employed. To measure the internal consistency (r), the Cronbach's alpha coefficient as was used by the original instrument developer and the result was 0.81. The instrument was judged reliable because the closer the r coefficient is to one (1) the more reliable the instrument (Knapp, 2009). The obtained value indicated that the instrument was highly reliable in a Nigerian setting.

3.6 Ethical Considerations

1. Ethical approval was obtained from the UI/UCH Ethics Committee to carry out the quasi experimental study using the instruments and information material stated in the protocol.

2. Official permission was obtained from all the institutions of nursing training to have access to their student nurses to take part in the study. The institutions were:

Sacred Heart Hospital School of Nursing, Abeokuta, Department of Nursing University of Ibadan, Ibadan, Department of Nursing Sciences, Obafemi Awolowo University, Ile-Ife, Osun State and School of Nursing, Ijebu-Ode, Ogun State.

3. Informed consent forms were given to each student nurse after a detailed explanation concerning the research, its objectives, length of time it was going to take, the modality and hazards involved. The student nurses gave their informed consent voluntarily to participate in the research study by signing the two copies of the forms given to them. They were instructed to keep a copy each.

4. **Confidentiality of Data:** Data collected from the study were kept confidential. Participant's involvement and responses were kept confidential. Participants' names were not part of the information obtained. The last four digits of their phone numbers requested for were for ease of comparison of pre and post-test only.

5. **Translation of protocol to local language**: This was not applicable to the study because participants were literate.

6. **Beneficience to participants**: Information obtained from the study was a pointer to institutions of learning to facilitate the provision of infrastructures that would stimulate independent learning and to the Nursing and Midwifery Council curriculum reviewers to ensure constructivist teaching approaches are enforced in the Basic Nursing Curriculum. This in turn hoped to help in producing professional nurses who would be scientific, critical thinkers and versatile in all aspects of nursing and health care.

7. **Non-maleficence to participants**: The intervention implemented in the study did not cause the participants any harm and injury, the only issue was that participants sacrificed a period of their precious time and adjusted their school's timetable to accommodate the researcher.

8. **Voluntariness**: The participants were free to decline participating in the study and those who were involved in the investigation could also withdraw and discontinue participation in the investigation, if they no longer wish to be involved in the study.

3.7 Procedure for Data Collection

A preliminary visit to the Principals and Heads of Departments of the nursing training institutions was initiated by the researcher two weeks before the commencement of investigation to familiarize herself with the audience and study site, and brief and intimate them on the purpose of the visit and interaction that would follow.

During the first encounter, the researcher personally administered the SDLR Scale and the pre-test to assess students' knowledge of some concepts in medical-surgical nursing course. This was to ensure that the responses were devoid of contamination. The answers from each participant were tagged with an identifier which was the last four digits of each participant's phone number before return.

The second visit entailed informing the 200 or 300 level programme coordinators about the selected unit (unit III) of the Medical-Surgical Nursing Course in the General Nursing Curriculum: Common Situations that Threaten Adaptation. The common situations include: Headache, Pain (as the 5th vital sign), Fever, Fatigue, Allergy and Unconsciousness for consideration to be taught during the interactive period. Through an inclusive method, involving the 200 level and 300 level nursing students, the goals of the learning interaction were set and the teaching module designed for the interaction was introduced to the students.

3.7.1 Study Implementation Phases

Phase 1: Week 1; 1st visit (2 hours): Selected schools of nursing were visited for personal introductions and familiarity with the school authority and the students. The purpose of the visit and subsequent interaction to follow was made known to the students. The researcher had a discussion with the 200 or 300 level programme coordinators and the nursing students to inform them about the course (unit III) of the Medical-Surgical Nursing Course in the General Nursing Curriculum: Common Situations that Threaten Adaptation. The common situations include: Headache, Pain (as the 5th vital sign), Fever,

Fatigue, Allergy and Unconsciousness). The researcher administered the self- directed learning readiness scale to aid development of the teaching module and a pretest to assess the nursing students' knowledge on the selected topics to have teaching/learning interactions on. The test instrument was to measure learning outcomes covering the nursing students' knowledge of common situations that threaten adaptation and the management of patients presenting with this conditions before and after exposure to intervention. The modalities that the SDL interaction would take was deliberated on and the learning approaches for the students were determined which were: topics for class group presentations, group discussion, and individual take home assignments; use of case study method to manage patients with the identified health challenges and use of problem based teaching approach. A teaching module and plan on the topics selected was developed after this visit.

Phase 2: Educational interaction with the study participants using the selected independent learning module was done during this phase. The students in the intervention group were visited by the researcher for a 2- hour interaction thrice a week for eight weeks. Participants were allocated into five groups based on their SDL preparedness scores. The participants were divided into groups to have a group of students with a low, below average, average, above average and high self-directed learning readiness score. To ensure that the group members were selected without bias, the nursing students in each category of self-directed readiness level were asked to pick a number between one and five sequentially, all the nursing students that picked number one formed group one, all twos formed the group two until the five groups were formed.

Week1; 2nd visit (2 hours): The interaction commenced with the students being taught how to plan and manage their time, seek information on any topic of interest and go about discovering useful information on their own using some search engines online and in the use of the library. They were also instructed on how to work as a group this was done for 30minutes. A visit to the head librarian of the school was carried out for 1hour 30 minutes. This was necessary to acquaint the nursing students on how to search for new and useful information independently.

The interaction period for the intervention group required mandatory attendance of all students, and attendance was taken daily through content-related quizzes on the topics treated during the previous visit. The treatment followed a systematic contact of 24 sessions of 2 hours daily, 3 times a week for 8 weeks. Overall there were 48 contact hours of self-directed learning students' engaging teaching interactions between the researcher and nursing students in the intervention group.

The control groups had the same topics taught by nurse educators who were recruited and trained as research assistants within a systematic contact of 21 sessions of 2 hours daily, 3 times a week for 7 weeks of teaching. There were a total of 42 contact hours of traditional didactic classroom lectures between the research assistants and the nursing students in the control group.

Week1; 3rd visit (2 hours): Different topics in the selected unit (unit III) of the Medical-Surgical Nursing Course in the General Nursing Curriculum: common situations that threaten adaptation. The common situations include: headache, pain (as the 5th vital sign), fever, fatigue, allergy and unconsciousness were read out to the student nurses. This was followed by questions and answers with discussion on each topic presented, ideas were proposed on the teaching strategies to use, rebutted, and defended, until, through discussion and critical argumentation, the class discerned the meaning of each of the topics and, more important, the learning objectives for the first topic; "Headache". The nursing students were engaged with questions and dialogue. Because the class was small, the researcher was able to determine each nursing student's progress, and the nursing students had ample occasion to make their difficulties known.

The nursing students were given the topic "Headache" as take home assignment so that individuals can study and come to class well prepared. They were instructed to visit the wards where patients with different disease conditions were admitted in the clinical area and interact with any patient who presented with headache as a symptom of his/her disease. Read about the topic; write down as much as possible, think out their arguments in advance and how to answer their peers' questions and counter-arguments. This was to sharpen their powers of reason, analysis, and articulation. The write-up on the topic should

follow the identified learning objectives. The topic was treated the following week (Week 2, 1st visit) using the group discussion teaching strategy.

Week 2, 1st visit (2 hours): The nursing students were ready with their different write-ups on the topic "headache" for the day's group discussion. The class members with the researcher sat is a circle so that no one is sitting behind another and everyone feels recognized and free to contribute. The nursing students were put into 5 groups of 8 members each. The topics discussed were: Definition of headache, causes of headache (Group 1); Types of headache (Group 2), Treatment of a patient with headache (Group 3) and management of a patient with headache to recovery using the nursing care plan (Group 4 and 5). Each group was called upon for a class debriefing in which students were called upon to share their findings with the class. The nursing students were instructed to listen carefully and contribute only when the speaker is through with his/her presentation. Issues were clarified, questions answered and contributions were made, every student was encouraged to be actively involved in the discussion which was moderated by the researcher. At the end of the 2 hours interaction, each of the student nurses had modified the write ups they brought to the class to form a rich complete lecture note on the topic headache. A quick summary of the interaction for the day was presented by the researcher and the class came to an end.

Week 2, 2nd visit (2 hours): The session started with a quick oral quiz on the topic discussed the previous session. Every student nurse was made to answer two questions each. They were also encouraged to asked questions on any grey area they do not understand for further clarifications. This lasted for 30 minutes.

The student nurses were presented with a scenario: Mrs Kokumo who had been living with diabetes mellitus for 30 years and had been complaining of severe neuropathic pains. All analgesics and anti-inflammatory administered had proven to be ineffective in the alleviation of the pain. Using a problem based approach to learning, manage Mrs Kokumo.

Learners are presented with this problem of chronic pain and through discussion within the group; the nursing students' prior knowledge was activated. The researcher in collaboration with the student nurses identified the learning outcomes of the lesson.

The problem used was geared toward achieving the specified learning outcomes. The problem was rooted in a real world situation and the students were asked to try to solve the identified problem. This is important because it helped to ground the lesson in something real that students can identify with.

Ground rules were set for the class and how the research would be conducted. What resources the students could use, the conduct of each student, and the contributions each student would make were discussed. Unclear terms were clarified. This helped to remove an early barrier to learning so that students can focus more on researching solutions to the problem they identified. The problem was defined. Students were encouraged to ask questions that may address the problem, which they can use to guide their research.

The students were also prepared for the group work they would be conducting. Each group member was assigned a specific role. They were also informed how the group work was going to be graded. In discussions within their groups, students were able to identify what information they were lacking to solve the problem. After this, the researcher guided their future research by formalizing the learning goals for each group. The nursing students were asked to go and look through different sources of information to find the lacking information. This information was used to address the questions that have been developed from the learning objectives and devise a final solution to the larger problem that was presented by the instructor (Yew, 2016).

Week 2, 3rd visit (2 hours):

The day started as usual with a quick quiz on what was done the previous session and then the students were asked to continue with their presentation on pain using the problem based learning strategy. After the first two groups have presented, the class started with the evaluation of the findings, the researcher assessed the quality of the resources used, and discussed the solution and explanations students arrived at. Each activity was followed by a class debriefing in which students were called upon to share their findings with the class. Questions were asked and answers provided, clarifications were made and misconceptions corrected. At the end of the 2 hours, the two groups were able to complete

their presentations and interactions done with every member of the class participating actively.

Week 3, 1st visit (2 hours):

The remaining three groups had their presentations, followed by class discussion on the presentations on pain. With the interactions and contributions, each of the student nurses had modified the write ups they brought to the class to form a rich complete lecture note on the topic pain as a 5th vital sign. A quick summary of the interaction for the two sessions on the topic was presented by the researcher and the class came to an end.

Week 3, 2nd visit (2 hours):

The day started as usual with a quick oral test on the previously treated topics. Students were given the topic fever as a take home assignment. They were instructed to carry out the assignment individually and submit to the researcher on her 3rd visit that same week.

The day's activities continued with the researcher introducing the next topic "Fatigue". Together the class identified and formulated the learning objectives. The researcher gave out sub topics on fatigue to different groups to prepare for class presentation. The sub topics were in line with the identified learning objectives. Nursing students were asked to go search for information as small groups in preparation for the next interactive session.

Week 3, 3rd visit (2 hours):

The day started with an unannounced class test covering the four topics that had been taught in class (headache, pain (as the 5th vital sign), fever and fatigue,). The nursing students were given 80 questions with multiple choice answers as test item. This was to be answered in 40minutes. The answer sheets were exchanged for peer marking. Scores were allocated and corrections done for the wrong answers.

A visit was carried out to the clinical area of the hospital to select patients who were on admission in a state of unconsciousness. Five adult patients (3 males and 2 females) were selected with different diagnosis and different levels of unconsciousness. The group leaders were asked to pick a case each by balloting. Each group was instructed to visit the patient they chose for two weeks and study the management given and the patient's

response to treatment. Write out everything concerning the patient for presentation in class as a case study.

Week 4, 1st visit (2 hours):

The assignment booklets were submitted for grading by the researcher. The researcher accompanied the student nurses to visit their case study patients on the wards. This took 45 minutes. On return to the school, class discussion on the clinical visit, the care given to the patients and their response to treatment was carried out. The nursing students were encouraged to discuss freely, ask questions and clarify issues concerning the management of the patients as each patient was managed differently. The discussions were guided by the learning objectives for the case study topic. This was done for one (1) hour, 15 minutes before the day's session came to an end.

Week 4, 2nd visit (2 hours):

The day started with a brief summary of what had been taught so far. This was done to start teaching from the known to unknown. Students were then asked to start the class presentation on the topic "fatigue". After every 30 minutes of presenting a sub topic, 10 minutes were set aside for questions, contributions and clarifications. This was done for 2 hours.

Week 4, 3rd visit (2 hours):

The day stated as usual with quiz on the topics treated during the previous session. The nursing students then continued with the class presentation on fatigue. After every 30 minutes of presenting a sub topic, 10 minutes were set aside for questions, contributions and clarifications. This was done for 2 hours.

Week 5, 1st visit (2 hours):

The day stated as usual with quiz on the topics treated during the previous sessions. The nursing students then continued with the class presentation on fatigue. The presentation for the day was on the management of a client presenting with fatigue using the nursing

care plan. After every 30 minutes of presentation, 10 minutes were set aside for questions, contributions and clarifications. This was done for 1 hour 30 minutes.

The remaining 30 minutes was used to discuss the reviewed and updated NANDA list for accurate nursing diagnosis in the management of patients using the nursing process.

Week 5, 2nd visit (2 hours):

The individual assignment were scored and feedback given to the students. The topic was discussed in class in line with the identified learning objectives. Every student nurse was encouraged to contribute as they took it in turns according to the seating arrangement to answer questions and discuss on the sub-topics. Corrections were made on the students assignment booklets to ensure that every student went home with the right information on the topic. The study participant who had the highest score on the individual assignment was celebrated by receiving a prize.

Week 5, 3rd visit (2 hours):

Case study presentation on unconsciousness was done in class after submitting the case study write-ups. Each group presented their selected patient following a laid down systematic format for presentation:

- What was the initial diagnosis of the patient?
- What were the vital signs on first contact including Glasgow Coma Score?
- What was the line of management?
- What key facts should be noted about the patient's management and response to care?
- What other alternatives were available to the management?
- What would the student nurses recommend and why?

Two groups were able to present their case study. Group discussions were carried out with each of the nursing students being encouraged to critically think and argue out her contributions to improve on the presentations.

Week 6, 1st visit (2 hours):

A brief recap of the previous session discussion was done to introduce the day's interactive session. Two other groups presented their cases. After each group's presentation, there was a period of class discussion on the general presentation. Contributions and recommendations were made on how to improve the case presentation write-ups.

Week 6, 2nd visit (2 hours):

A brief recap of everything that had been done on the topic, questions from the students were attended to before introducing the day's interactive session. The last group presented their case. After the presentation, there was a period of class discussion on the general presentation. Contributions and recommendations were made on how to improve the case presentation write-up. This took 1 hour 20 minutes. The remaining 40 minutes was used for general questions and answers on all the topics treated.

Week 6, 3rd visit (2 hours):

The nursing students were given the topic "allergy" as take home assignment so that individuals can study and come to class well prepared. This was done after a brief introduction to the topic and deliberations and statement of the learning objectives. The student nurses were instructed to visit the library and search online for necessary information concerning the topic. Read about the topic; write down as much as possible using the stated learning objectives as a guide, think out their arguments in advance and how to answer their peers' questions and counter-arguments. This was to sharpen their powers of reason, analysis, and articulation. The write-up on the topic should follow the identified learning objectives. The topic was treated the following session (Week 6, 3rd visit) using the group discussion teaching strategy.

Week 7, 1st visit (2 hours): The nursing students were ready with their different write-ups on the topic "allergy" for the day's group discussion. The class members with the researcher sat is a circle so that no one is sitting behind another and everyone feels recognized and free to contribute. The nursing students were put into 5 groups of 8 members each. Each group was called upon for a class debriefing in which students were

called upon to share their findings with the class. The nursing students were instructed to listen carefully and contribute only when the speaker is through with his/her presentation. Issues were clarified, questions answered and contributions were made, every student was encouraged to be actively involved in the discussion which was moderated by the researcher. At the end of the 2 hours interaction, two groups were able to present.

Week 7, 2nd visit (2 hours):

A brief recap of the previous session was done to ensure continuity; the remaining three groups had their presentations on allergy done. This was followed by class discussion, questions, answers, deliberations and conclusions. The student nurses were instructed to modify their write ups to form a rich complete lecture note on the topic allergy. A quick summary of the interaction for the two days sessions was presented by the researcher and the class came to an end.

Week 7, 3rd visit (2 hours): The class had a general discussion on the teaching strategies used. Every student was made to pass a comment on the teaching strategy used and its effect on their attitude to learning generally. They were also asked to discuss any new knowledge acquired during the period of interaction. Recommendations were welcomed. All the topics treated were re-visited. Questions from the students were attended to and clarifications made as a form of revision.

Week 8, 1st visit (2 hours):

Lecture free week to allow students read in preparation for the post-test.

Week 8, 2nd visit (2 hours):

Visit by the researcher to the school and administration of the same test items used for pre-test at the beginning of the interaction as the post-test. This was to evaluate the outcomes of the teaching strategies.

Week 8, 3rd visit (2 hours): Get together organized by the researcher. Presentation of results and feedback to the students and school authority was done. One of the schools in the intervention group appreciated the researcher by presenting her a gift.
The interactive session with the intervention group came to an end.

The implementation of the intervention for both groups in each school took eight weeks each. The period of the year the interaction came up was determined by the academic calendar of the different schools of nursing. The nursing students in the schools under the control group had the same topics taught in class by lecturers who were recruited and instructed as research assistants using the normal class didactic lecture method.

Phase 3: The same test items used for the pre-test before the intervention was administered again for the second learning outcome post-test for the participants in both groups on the topics they had interactions on. This came up on the 8th week to give the students some time for preparation for the evaluation exercise. The learning result test was graded and the percentile grades documented for comparison with the pre-test scores.

3.8 Procedure for Data Analysis

In the first stage, the adapted and modified Self-Directed Learning Readiness Scale (Guglielmino, 2008) responses were graded, with the raw grades converted to percentiles and readiness levels. The results were coded as numerical data and entered into a spreadsheet for analysis. In the SDLRS grading protocol, items left blank were coded as 3, the middle response; responses with 5 or more unanswered items were discarded. The 58 items Likert scale forming the learning preference assessment statements were coded using a score of 1; for any statement that says “almost never true of me: I hardly ever feel this way, 2; for responses saying “ not often true of me: I feel this way less than half the time, the third option which says “sometimes true of me: I feel this about half the time” was allocated a score of 3, the fourth option which says “usually true of me : I feel this way more than half the time” attracted a score of 4 and the fifth option which says “ almost always true of me: there are very few times I don’t feel this way” had 5 allocated to it. The scores for the 58 items were summed up to give the self–directed learning readiness level. This rating was utilized for every question in the 58 item Likert scale

except for sixteen (16) questions which were negatively worded and were reversed. A minimum score, maximum score, standard deviation and a mean score were derived from the scores for both the intervention group and the control group. The SDL preparedness grades are interpreted as the nursing students' readiness level for independent learning. This knowledge was necessary as a guide for the modification of the adapted SDL module and the process of grouping the participants in preparation for the educational interaction. Pre intervention baseline knowledge, data, learning interaction and post intervention learning data collection were between May, 2014 and July, 2015. The interaction came up at different times of the year, based on each school's calendar and the period the school could accommodate the researcher.

Objective 1: To assess nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in intervention and control groups at pre and post -intervention.

The 50-item multiple choice questions on the six selected topics from the unit III of medical-surgical nursing course (common situations that threaten human adaptation) proposed to be used as an intervention was administered at pre-intervention to assess the nursing students' knowledge. The multiple choice questions were coded and scored, the correct answer had one (1) while the incorrect answer had zero (0). A percentage was calculated for each respondent. Respondents who scored above 25 (50%) were graded as having good knowledge while students who scored below 25 (50%) were rated as having poor knowledge.

Objective 2: To identify the nursing students' attitude towards self-directed learning among intervention and control groups at pre and post-intervention.

The Self-Directed Learning Readiness Scale (SDLRS) for the study was adapted from the SDLRS (Guglielmino, 2008) which is composed of fifty eight items with responses on a 5- point Likert scale. It was modified and put under five themes to assess the nursing students' characteristics using preference for independent study, self-management, curiosity, desire for learning and problem solving ability. An independent sample t-test was computed to analyse the responses from the last four themes in the 58 Likert scale questions section B of the instrument which were utilised to assess the nursing students'

attitude towards learning in the two groups before and after exposure to intervention, The scale covered: self-management, curiosity, desire for learning and problem solving abilities of the nursing students. The findings presented in tables.

Objective 3: To establish the preferred learning strategy between Self-Directed Learning and Traditional Didactic Lecture-based Method among nursing students in Southwestern Nigeria.

The 10 items which were grouped under the preference for independent learning from the 58 Likert scale questions section B of the questionnaire was utilised to establish which of the two learning strategies (self-directed learning or traditional didactic class lecture method) was most preferred by the participants in the two groups before and after exposure to the intervention. Responses were grouped into two categories depending on their choice. An independent sample t-test was conducted to establish the most preferred learning strategy. The findings are presented in tables.

Objective 4: To identify factors that influence the choice of learning strategy among nursing students in the intervention and control groups at pre-intervention in Southwestern Nigeria.

Section C of the instrument consisting 11 questions was utilized to achieve this. The scale of measurement of the 11 items assessing this issue was interval as there was no zero point. The items were coded with the most appropriate answer of Yes or No. A frequency count was done and percentages allocated for each response given, same was done to the specifications on some of the factors respectively. Chi square test was used to compute the responses. Findings are presented in tables.

Objective 5: To assess the self-directed learning readiness level of the nursing students in the intervention and control groups at pre and post intervention.

The Self-Directed Learning Readiness Scale (SDLRS) for the study was adapted from the SDLRS (Guglielmino, 2008). The scale was developed to appraise individual attitudes, values, skills and personal attributes that are related of self-direction in learning; composed of 58 items with responses on a five- point Likert scale. This scale was adapted

and modified for use in Nigerian setting. Scores were summed up and interpreted according to the author's guide. According to (Guglielmino, 2014), the *SDLRS-A/LPA* Score is interpreted as follows: Low (58-118), below average (189-203), average (204-218), above average (219 -232) and high (233 -290). Findings are presented in tables.

$H_0$1: There is no significant difference between nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention and control groups at pre and post-intervention.

The pre-intervention knowledge scores in both the intervention and control groups were cross tabulated with the post-intervention knowledge scores. Using the independent t-test, the mean values of the two groups knowledge scores (pre-test) were used to assess significant difference between nursing students knowledge of common situations in medical-surgical nursing that threaten human adaptation in both intervention and control groups after utilising self-directed learning strategies and classroom didactic lecture-based method in teaching the students (post-test) at a significance level of P=0.05. The findings presented in tables.

$H_0$2: Significant difference between the nursing students' attitude towards self-directed learning among intervention and control at pre and post-intervention

The responses from the last four themes of the 58 Likert scale questions section B of the questionnaire covering self-management, curiosity, desire for learning and problem solving ability were utilised to assess the nursing students' attitude towards self-directed learning among intervention and control groups at pre and post-intervention.

An independent samples t-test was conducted to identify the nursing students' attitude towards self-directed learning in the intervention and control groups at pre and post-intervention. The findings were presented in tables.

$H_0$3 There is no significant difference between nursing students' attitude to learning, and their knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

The responses from the last four themes of the 58 Likert scale questions section B of the questionnaire covering self-management, curiosity, desire for learning and problem solving ability were utilised to assess the nursing students' attitude towards self-directed learning among intervention and control groups at pre and post-intervention. The pre-intervention attitudinal scores were computed against the nursing students' learning outcome and a multiple linear regression was utilised to predict the variance at a significant level of 0.05. The findings are presented in tables.

$H_0$4: There is no significant difference in the nursing students' preferred learning strategy in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

A initial assessment of the homogeneity regression assumption was carried out on the pre and post-intervention scores for preferred learning strategy among the nursing students which indicated that the interaction between the covariate (pre score) and dependent variable (post score) was significant, hence a multiple linear regression was used to predict the difference in the nursing students' preferred learning strategy, calculated at a significant level of 0.05. Findings are presented in tables.

$H_0$5: There is no significant relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

The primary analysis of the homogeneity regression assumption conducted on the pre and post-intervention scores to predict the preferred learning strategy among the nursing students indicated that the interaction between the covariate (pre score) and dependent variable (post score) was substantial. A one way analysis of covariance could not be done, hence a multiple linear regression was used to predict the relationship between the

Nursing Students' age, type of secondary school attended and gender and their preferred learning strategy; calculated at a significant level of 0.05. Findings are presented in tables.

$H_0$6: There is no significant relationship between the nursing students' preferred learning strategy and their knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention and control groups at pre and post-intervention.

The pre and post-intervention scores for preferred learning strategy among the nursing students were computed against their knowledge scores. A multiple linear regression was used to predict post -test (knowledge) score from pre- test (knowledge) score and group (intervention and control groups) to discover a statistical significant relationship at a significant level of 0.05.

$H_0$7: There is no significant relationship between influencing factors and nursing students' preferred learning strategy in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

Figures from influencing factors in objective four were computed against figures from objective three. These were cross tabulated using the One way analysis of covariance (ANCOVA) to find out the relationship between the influencing factors (staff strength, Teaching Methods, Type of examination questions, Internet access, Library facilities, Workload and Clinical experience) and the nursing students' preferred learning strategy; calculated at a significant level of 0.05 using a multiple linear regression.

CHAPTER FOUR
RESULTS AND DISCUSSION OF FINDINGS

4.0 Introduction

This quasi-experimental study measured the learning outcomes between Self-Directed Learning and Didactic Lecture-based mode of learning among nursing students in Southwestern Nigeria. Data was collected from 202 nursing students at baseline, while 37 dropped out, only 165 completed the study. The attrition rate was 18.3%. The data obtained at the end of the experiment were analysed. The results are presented in this chapter and discussed sequentially.

4.1 Socio-demographic Information of Nursing Students in the intervention and control groups.

Table 4.1 below shows the socio-demographic information of the 165 nursing students (learners) from four schools of nursing training randomly selected from Southwestern Nigeria. There were only 13 (7.9%) male nursing students and 152 (92.1%) female nursing students, $X^2 = 0.589$, $p = 0.399$. The age distribution of the nursing students shows that 61.0% in the intervention group and 47,7% in the control group are $\leq$ 20years, while 39.0% in the intervention group and 52.3% control group are > 20 years, $X^2 = 2.92$, $p=0.087$. Mean age intervention group 20.88±3.52; Mean age control group 21.47±2.61 respectively. The majority of the respondents 70 (42.2%) attended private secondary schools, 63 (38.2%) attended public secondary schools, 16 (9.7%) attended federal secondary schools and mission secondary schools respectively, $X^2 = 5.041$, $p = 0.169$. Almost all the respondents 154 (93.3%) entered into their various schools of nursing straight from secondary school only 11 (6.7%) had other tertiary training before going in for nursing training, $X^2 = 9.269$, $p= 0.002$. Majority 118 (71.5%) of the nursing students were in 200level with only 47 (28.5%) in 300 level of their training $X^2 = 57.505$, $p = 0.001$.

Educational qualification before the nursing training programme and present level in school of nursing were significantly different while Age, gender, secondary school attended had no significant difference between the two groups.

Table 4.1: Socio-demographic characteristics of study participants (Nursing students) in the intervention and control groups at pre and post intervention.

Variable	Intervention F %	Control F %	Total F %	X^2	p- value
Gender					
Male	7(9.1)	6(6.8)	13(7.9)	0.589	0.399
Female	70(90.9)	82(93.2)	152(92.1)		
			165 (100)		
Age (Years)					
≤19 Years	47(61.0)	42(47.7)	89(53.9)		
>19 Years	30(39.0)	46(52.3)	76(46.1)	2.92	0.087
			165 (100)		
Mean Age (t-test)	***20.88±3.52***	***21.47±2.61***			
Type of Secondary School Attended					
Public Secondary School	23(29.9)	40(45.5)	63(38.2)		
Federal Secondary School	7(9.1)	9(10.2)	16(9.7)	5.041	0.169
Mission Secondary School	8(10.4)	8(9.1)	16(9.7)		
Private Secondary School	39(50.6)	31(35.2)	70(42.2)		
			165 (100)		
Educational qualification attained					
Secondary School	67(87.0)	87(98.9)	154(93.3)	9.269	0.002
Others (Any Tertiary Institution)	10(13.0)	1(1.1)	11(6.7)		
			165 (100)		
Year in Present Programme					
200 level	77(100)	41(46.6)	118(71.5)	57.505	0.001
300 level	0 (0)	47(53.4)	47(28.5)		
			165 (100)		

4.2 Objectives of the Study

Objective One: To assess nursing students' knowledge of common situations that threaten adaptation in intervention and control groups at pre and post-intervention.

$H_0$1: There is no significant difference between nursing students' knowledge of common situations that threaten adaptation in intervention and control groups at pre and post-intervention

Table 4.2a: Nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in control and intervention groups at pre and post-intervention.

Table 4.2a below shows the nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in control and intervention groups at pre and post-intervention.

At pre-intervention, nursing students in the intervention and control group had some knowledge of common situations in medical-surgical nursing that threaten human adaptation**.** This was greatly increased at post-intervention in both groups but higher in intervention group than the control group.

Table 4.2a: Nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in intervention and control groups at pre and post-intervention.

		Pre-Intervention			Post-intervention		
Variable	**Knowledge**	**Intervention F %**	**Control F %**	**Total F %**	**Intervention F %**	**Control F %**	**Total F %**
Knowledge of Common situations that threaten adaptation	Good	22 (28.6)	48 (54.5)	70(42.4)	77 (100%)	72 (81.8)	149 (90.3)
	Poor	55 (71.4)	40 (45.5)	95 (57.6)	0 (0%)	16 (18.2)	16 (9.7)
	Total	77 (100%)	88 (100%)	165 (100%)	77 (100%)	88 (100%)	165 (100%)

$H_0$1: There is no significant difference between nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in intervention and control groups at pre and post-intervention

Table 4.2b: Significant difference between nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in intervention and control groups at pre and post-intervention

Using an independent sample t-test, at pre intervention, nursing students in both intervention and control groups had knowledge of common situations in medical-surgical nursing that threaten human adaptation. Intervention group mean score value = 21.4 ± 6.0, the control group mean score value = 22.4 ± 7.0. There was no statistical significance p= 0.062 > 0.05. No significant difference between the knowledge of nursing students in the intervention and control groups.

At post-intervention, there was increase in the nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in both groups. Intervention group mean score value = 35.1 ± 4.8, control group mean score value = 27.9 ±4.2. The difference in knowledge between groups was significant at p= 0.000 < 0.05.

Table 4.2b: Significant difference between nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in intervention and control groups at pre and post-intervention (Between Groups)

	Pre-intervention				Post-intervention		
Medical-surgical nursing knowledge score	**N**	**Pre-intervention Mean ± SD**	**T**	**p-value**	**Post-intervention Mean ±SD**	**t**	**p-value**
Intervention Group	77	21.4 ±6.0	-2.0	0.062	35.1 ± 4.8	10.4	0.000
Control Group	88	22.4 ±7.0			27.9 ± 4.2		

Table 4.2c: Significant difference between nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention group at pre and post-intervention (Within Intervention group) using paired T-test

Paired T-test was used to compare the mean score values for the nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation within intervention group at pre and post-intervention. The results revealed that at pre-intervention there was a mean score value of 19.4 ±3.0 for the nursing students with good knowledge and a mean score value of 20.3 ±7.0 for the nursing students with poor knowledge. At post-intervention, all the nursing students in the intervention group had good knowledge of common situations in medical-surgical nursing that threaten human adaptation, mean score value = 72.1 ± 4.2; $p= 0.000 < 0.05$ showing a significant difference between knowledge at pre and post-intervention within the intervention group.

Table 4.2c: Significant difference between nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention group at pre and post-intervention (Within Intervention group) using paired T-test

	Pre-intervention				Post-intervention			
knowledge	**N**	**Pre- interv Mean ± SD**	**t**	**p-value**	**Post- interv Mean ±SD**	**N**	**T**	**p-value**
Control Group								
Good	22 (28.6%)	19.4 ±3.0	-2.0	0.132	72.1 ± 4.2	77 (100%)	10.4	0.048
Poor	55 (71.4%)	26.3 ±7.0				0		

Table 4.2d: Significant difference between nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation in the intervention group at pre and post-intervention (Within control group) using paired T-test

Paired T-test was used to compare the mean score values for the nursing students' knowledge of common situations in medical-surgical nursing that threaten human adaptation within control group at pre and post-intervention. The results revealed a mean score value of 24.4 ±6.0 for the nursing students with good knowledge and a mean score value of 22.4 ±7.0 for the nursing students with poor knowledge at pre-intervention. At post-intervention, there was an increase in good knowledge with a mean score value of 52.1 ± 4.8 for the nursing students with good knowledge of common situations that threaten adaptation and a mean score value of 27.9 ± 4.2 for the nursing students with poor knowledge. With $p= 0.048 < 0.05$ showing a significant difference between knowledge at pre and post-intervention within the intervention group.

Table 4.2d: Significant difference between nursing students' knowledge of common situations that threaten adaptation in the control group at pre and post-intervention (Within Control group)

	Pre-intervention				Post-intervention			
knowledge	**N**	**Pre-interv Mean±SD**	**t**	**p-value**	**N**	**Post- interv Mean ±SD**	**t**	**p-value**
Control Group								
Good	48 (54.5%)	24.4 ±6.0	2.0	0.078	72 (81.8%)	52.1 ± 4.8	8.2	0.048
Poor	40 (45.5%)	22.4 ±7.0			16 (18.2%)	27.9 ± 4.2		

Objective Two: To identify the nursing students' attitude towards self-directed learning among intervention and control.

$H_0$2: There is no significant difference between the nursing students' attitude towards self-directed learning among intervention and control at pre and post-intervention

Table 4.3a Nursing students' attitude towards self-directed learning among intervention and control groups.

$H_0$2: Significant difference between the nursing students' attitude towards self-directed learning among intervention and control at pre and post-intervention

Table 4.3a below shows the nursing students' attitude towards self-directed learning among intervention and control at pre and post-intervention

At pre-intervention, nursing students in the intervention and control group had a slight positive attitude towards self-directed learning. This was greatly increased at post-interven tion in both groups but higher in intervention group than the control group. Everyone in the intervention group developed a positive attitude towards self-directed learning at post intervention unlike in the control group.

Table 4.3a: Nursing students' attitude towards SDL among intervention and control groups and Significant difference between the nursing students' attitude towards self-directed learning among intervention and control at pre and post-intervention

		Pre-Intervention			Post –Intervention		
Variable	**Outcome**	**Intervention Group N (F%)**	**Control Group N (F%)**	**Total N (F%)**	**Intervention Group N (F%)**	**Control Group N (F%)**	**Total N (F%)**
Attitude of nursing students towards SDL	Positive	48 (62.3%)	60 (68.2%)	108 (65.5%)	77 (100%)	68 (77.3%)	145 (87.9%)
	Negative	29 (37.7%)	28 (31.8%)	57 (34.5%)	0 (0%)	20 (22.7%)	20 (12.1%)
	Total	77 (100%)	88 (100%)	165 (100%)	77 (100%)	88 (100%)	16 (100%)5

$H_0$2: Significant difference between the nursing students' attitude towards self-directed learning among intervention and control at pre and post-intervention

An independent samples t-test was conducted to prove if there is any significant difference between the nursing students' attitude to self-directed learning in the control and intervention groups at pre and post-intervention.

Table 4.3b below shows that at pre intervention, the nursing students in both the intervention and control groups had a similar attitude towards self-directed learning looking at 4 themes: Self-management; Intervention group mean = 36.0 ± 5.8, control group mean = 36.7 ± 4.9, t = -0.909, p = 0.365. Curiosity; intervention group mean = 38.0 ± 5.9, control group mean = 38.3 ± 5.6, t = -0.246, p = 0.806, desire for learning; intervention group mean = 58.3 ± 6.3, control group mean = 59.6 ± 7.2, t = -1.280, P = 0.203 and problem solving; intervention group mean = 43.4 ± 6.2, control group mean = 43.4± 5.4, t = 0.062, P = 0.950 respectively. There was no significant difference.

At post –intervention, there was a substantial variation in all the nursing students' attitude towards self-directed learning. Self-management; intervention group mean = 38.6±3.4, control group mean = 37.3±2.8, t = 1.892, p = 0.021, curiosity; intervention group mean = 42.4±2.8, control group mean = 39.1± 3.5, t = 2.874, p = 0.022, desire for learning; intervention group mean = 61.9±6.7, control group mean = 60.5±4.1, t= 6.766, p = 0.031 and problem solving ability; intervention group mean = 47.4± 4.9, control group mean = 45.4± 6.1, t =2.260, P= 0.025.

These results suggested dissimilarity in the attitude of the nursing students towards self-directed learning in the two groups after intervention.

Table 4.3b: Significant difference between the nursing students' attitude towards self-directed learning among intervention and control at pre and post-intervention

		Pre-Intervention			Post –Intervention		
Attitude of nursing students towards learning	**N**	**Pre-intervention Mean ± SD**	**t**	**p-value Sig (2tailed)**	**Post-intervention Mean ± SD**	**t**	**p-value Sig (2tailed)**
Self-Management	Inter. 77	36.0 ± 5.8	-0.909	0.365	48.6± 3.4	1.892	0.021
	Control 88	36.7 ± 4.9			37.3 ± 2.8		
Curiosity	Inter. 77	38.0 ± 5.9	- 0.246	0.806	42.4± 2.8	2.874	0.022
	Control 88	38.3 ± 5.6			39.1± 3.5		
Desire for learning	Inter. 77	58.3 ± 6.3	- 1.280	0.203	61.9± 6.7	6.766	0.031
	Control 88	59.6 ± 7.2			60.5± 4.1		
Problem solving ability	Inter. 77	43.4 ± 6.2	0.062	0.950	47.4±4.9	2.260	0.025
	Control 88	43.4±5.4			45.4±6.1		

Table 4.3c: Nursing students' attitude towards self-directed learning within intervention group and the significant difference at pre and post intervention

A paired sample t-test was conducted to identify the nursing students' attitude towards self-directed learning and the significant difference within the intervention group at pre and post-intervention.

Table 4.3c below shows that at pre intervention, the nursing students in the intervention group had a slightly positive attitude towards self-directed learning looking at 4 themes: Self-management; mean value = 32.0 ± 3.8, t = -0.505, p = 0.215. Curiosity; mean value = 31.0 ± 2.9, t = -0.226, p = 0.723, desire for learning; mean value = 36.4 ± 4.3, t = -1.271, P = 0.221 and problem solving ability; mean value = 39.4 ± 5.2, t = 0.049, P = 0.854. There was no significant difference between those who had a positive and a negative attitude.

At post –intervention, there was a substantial variation in all the nursing students' attitude towards self-directed learning. Self-management; mean value= 35.3±3.2, t = 1.742, p = 0.014, curiosity; mean value = 39.6±2.5, t = 2.234, p = 0.005, desire for learning; mean value = 45.3±4.8, t= 2.485, p = 0.003 and problem solving ability; mean value = 42.1± 2.8, t =2.210, P= 0.007.

These results suggested a great improvement in the attitude of the nursing students towards self-directed learning in the intervention group after intervention.

Table 4.3c: Nursing students' attitude towards self-directed learning within intervention group and the significant difference at pre and post intervention

		Pre-Intervention			Post –Intervention		
Attitude of nursing students towards SDL	**N**	**Pre-intervention Mean ± SD**	**t**	**p-value Sig (2tailed)**	**Post-intervention Mean ± SD**	**t**	**p-value Sig (2tailed)**
Self-Management	77	32.0 ± 3.8	-0.505	0.215	35.3± 3.2	1.742	0.014
Curiosity	77	31.0 ± 2.9	- 0.226	0.723	39.6± 2.5	2.234	0.005
Desire for learning	77	36.4 ± 4.3	- 1.271	0.221	45.3± 4.8	2.485	0.003
Problem solving ability	77	39.4 ± 5.2	0.049	0.854	42.1±2.8	2.210	0.007

Table 4.3d: Nursing students' attitude towards self-directed learning within control group and the significant difference at pre and post intervention

A paired sample t-test was conducted to identify the nursing students' attitude towards self-directed learning and the significant difference within the control group at pre and post-intervention.

Table 4.3d below shows that at pre intervention, the nursing students in the intervention group had a slight positive attitude towards self-directed learning looking at 4 themes: Self-management; mean value = 32.4 ± 2.9, t = -0.535, p = 0.315. Curiosity; mean value = 31.7 ± 2.3, t = -0.231, p = 0.823, desire for learning; mean value = 37.1 ± 5.3, t = -1.283, P = 0.211 and problem solving ability; mean value = 39.4 ± 1.9, t = 0.057, P = 0.724. There was no significant difference between those who had a positive and a negative attitude towards self-directed learning.

At post –intervention, there was a slight variation in all the nursing students' attitude towards self-directed learning. Self-management; mean value= 33.2±2.2, t = 1.362, p = 0.044, curiosity; mean value = 32.6±2.5, t = 1.304, p = 0.047, desire for learning; mean value = 39.1±2.8, t= 2.235, p = 0.037 and problem solving ability; mean value = 41.1± 2.3, t =2.312, P= 0.027.

These results suggested a slight improvement in the attitude of the nursing students towards self-directed learning in the control group at post- intervention.

Table 4.3d: Nursing students' attitude towards SDL within control group and the significant difference at pre and post intervention

		Pre-Intervention			Post –Intervention		
Attitude of nursing students towards SDL	**N**	**Pre-intervention Mean ± SD**	**t**	**p-value Sig (2tailed)**	**Post-intervention Mean ± SD**	**t**	**p-value Sig (2tailed)**
Self-Management	88	32.4 ± 2.9	-0.535	0.315	33.2±2.2	1.362	0.044
Curiosity	88	31.7 ± 2.3	- 0.231	0.823	32.6± 2.5	1.304	0.047
Desire for learning	88	37.1 ± 5.3	- 1.283	0.211	39.1± 2.8	2.235	0.037
Problem solving ability	88	39.4 ± 1.9	0.057	0.724	41.1±2.3	2.312	0.027

Objective Three: To establish the preferred learning strategy between Self-Directed Learning and Traditional Didactic Lecture-based Method among nursing students in Southwestern Nigeria.

Table 4.4a: Nursing students' preferred learning strategy between Self-directed learning and traditional didactic class lecture method at pre and post-intervention.

An independent sample t-test was used to compare the Nursing students' preferred learning strategy between self-directed learning and traditional didactic class lecture method at pre and post-intervention.

Table 4.4a below shows that at pre-intervention, the intervention group had a mean score of 34.8 ± 4.9 in the preference for self-directed learning, whereas the control group had a higher mean score of 35.6±4.5 in her preference for self-directed learning to traditional didactic class lecture method. There was no significant difference P= 0.295 >0.05.

At post-intervention, there was an increase in the mean score of the respondents' preference for self-directed learning in both the intervention and control groups. The intervention group had a mean score of 40.0 ± 2.5 while the control group had 36.2 ± 4.2 in their preference for self-directed learning to traditional didactic class lecture method with a mean difference of 3.8. This was significant P=0.000 <0.05.

These results suggested that there was no variance in the preferred learning strategy mean values of the nursing students in the two groups before intervention but a significant difference exist in the preferred learning strategy mean values for SDL between intervention and control group at post- intervention.

Table 4.4a: Preferred learning strategy between self-directed learning and traditional didactic lecture-based method among nursing students in the two groups.

			Pre-intervention			Post-intervention		
Preferred Learning Strategy	**N**		**Pre-intervention Mean ±SD**	**t**	**p-value Sig. (2tailed)**	**Post-intervention Mean ±SD**	**t**	**p-value Sig. (2tailed)**
Preference for Self-Directed Learning	Inter.	77	34.8 ± 4.9	- 1.050	0.295	40.0 ± 2.5	6.831	0 .000
	Control	88	35.6 ± 4.5			36.2 ± 4.2		

Table 4.4b: Difference between nursing students' preferred learning strategy in the intervention group at pre and post-intervention.

Table 4.4b shows the difference between nursing students' preferred learning strategy in the intervention group at pre and post-intervention.

A paired sample t-test was conducted to identify the nursing students' preferred learning strategy in the intervention group at pre and post-intervention.

Table 4.4b below shows that at pre intervention, a few of the nursing students in the intervention group had preference for self-directed learning with a mean score value of 36.9 ± 4.9 but at post intervention there was a significant increase in the nursing students' preference for self-directed learning, mean score value 43.2 ± 2.4, t -10.128 and $p=0.000$

This result suggested that there is a great difference in the preferred learning strategy mean values of the nursing students at pre and post intervention.

Table 4.4b: Paired T-test table showing the difference between nursing students' preferred learning strategy in the intervention group at pre and post-intervention.

Preference for SDL	N	Mean ± SD	t	p-value
Pre interv. Score	77	36.9 ± 4.9	-10.128	0.000
Post interv. Score	77	43.2 ± 2.4		

Table 4.4c: Difference between nursing students' preferred learning strategy in the control group at pre and post-intervention.

Table 4.4c shows the difference between nursing students' preferred learning strategy in the control group at pre and post-intervention.

A paired sample t-test was conducted to identify the nursing students' preferred learning strategy in the control group at pre and post-intervention.

Table 4.4c below shows that at pre intervention, a few of the nursing students in the control group had preference for self-directed learning with a mean score value of 37.6 ± 4.4 but at post intervention there was a slight increase in the nursing students' preference for self-directed learning, mean score value 38.3 ± 4.3, t -3.320 and p=0.061

This result suggested that there is no significant difference in the preferred learning strategy mean values of the nursing students in the control group at pre and post intervention.

Table 4.4c: Paired T-test table showing the difference between nursing students' preferred learning strategy in the control group at pre and post-intervention.

Preference for SDL	N	Mean ± SD	t	p-value
Pre interv. Score	77	37.6 ± 4.4	-3.320	0.061
Post interv. Score	77	38.3 ± 4.3		

Objective Four: To identify factors that influence the choice of learning strategy among nursing students in the intervention and control groups.

Table 4.5: Factors that influence the choice of learning strategy among nursing students in in Southwestern Nigeria.

A chi-square analysis was conduct to determine factors influencing the choice of learning strategy among nursing students in the intervention and control groups at pre-intervention Table 4.5 present influencers of the choice of learning strategy of the nursing students which include : Number of teachers, $X^2 = 38.540$, $P = 0.000$, use of application questions during examinations, $X^2 = 5.335$, $p = 0.016$, and number of weeks spent on Clinical experience, $X^2 = 38.540$, $p = 0.000 < 0.05$. This is significant (The result was confirmed).

Other factors have no substantial effect on the nursing students' choice of learning strategy. Teaching Methods used in the school, $X^2 = 3.078$, $p = 0.058$, Heavy home workload, $X^2 = 2.744$; $p = 0.067$, Internet access in schools, $X^2 = 0.754$, $p = 0.239$, Library facilities, $X^2 = 2.445$ $p = 0.079$.

Table 4.5: Factors that influence the choice of learning strategy among nursing students in in Southwestern Nigeria.

Influencing factor for choice of preferred learning strategy (pre-intervention)	Intervention N%	Control N%	X^2	P-value
Staff strength in schools				
10	29(37.7)	0(0.0)		
15	48(62.3)	88(100.0)	38.540	0.000
Teachers spend time giving lecture notes				
Yes	64(83.1)	63(71.6)	3.078	0.058
No	13(16.9)	25(28.4)		
Use of application questions during exams	20(26.0)	38(43.2)	5.335	0.016
Yes	57(74.0)	50(56.8)		
No				
Heavy homework load on students	41(53.2)	58(65.9)	2.744	0.067
Yes	36(46.8)	30(34.1)		
No				
Presence of internet connectivity at school	34(44.2)	33(37.5)	0.754	0.239
Yes	43(55.8)	55(62.5)		
No				
Access to a current rich library in school	47(61.0)	43(48.9)	2.455	0.079
Yes	30(39.0)	45(51.1)		
No				
Number of weeks of clinical posting	49(63.6)	88(100.0)	38.540	0.000
6weeks	28(36.4)	0(0.0)		
7weeks				

Objective 5: To assess the self-directed learning readiness level of the nursing students in the intervention and control groups at pre and post intervention.

Table 4.6a: Self-directed Learning Score of the nursing students in the two groups at pre and post-intervention.

The SDL learning preparedness score (SDLRS) of the participants was assessed before and after exposure to the intervention. A chi-square test was conducted to relate the SDLRS score of the nursing students before and after intervention. At pre-intervention, in the intervention group 16(20.8%) had a score below average, 27 (35.1%) average score, and 34 (44.2%) above average. The control group revealed 21 (23.9%) below average, 16 (18.2%) with average score and 51 (58.0%) having above average SDLRS. Pre-intervention SDLRS p= 0.065. No significant difference.

Before the exposure to the intervention, the intervention group revealed that no student had a score below average 0(0.0%), only 1 (1.3%) of the nursing students had an average score (SDLRS) while 76 (98.7%) had a Score above average. In the control group, 11 (12.5%) of the nursing students had a SDLRS below average, 25 (28.4%) had an average score while only 52 (59.0%) had a SDLRS above average. The post-intervention SDLRS p = 0.000 implies a substantial difference.

The assessment of the SDLR level was necessary to adjust the modified SDL module for the 8 weeks interaction with the intervention group.

Table 4.6a: Self-Directed Learning Readiness Score (SDLRS) of Nursing Students in the Intervention and Control Groups at Pre and Post Intervention

	Pre-Intervention					Post-Intervention				
Variable SDLRS	**Inter N%**	**Contr. N%**	**Total N%**	**X^2**	**p- value**	**Inter N%**	**Contr. N%**	**Total N%**	**X^2**	**p- value**
Below Average	16 (20.8)	21 (23.9)	37 (22.4)			0 (0.0)	11 (12.5)	11 (6.7)		
Average	27 (35.1)	16 (18.2)	43 (26.1)	6.184	0.065	1 (1.3)	25 (28.4)	26 (15.8)	119.50	0.000
Above Average	34 (44.2	51 (58.0)	85 (51.5)			76 (98.7)	52 (59.0)	128 (77.6)		

$H_0$3 There is no significant difference between nursing students' attitude to learning and their knowledge of common situations that threaten human adaptation in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

Table 4.7a: Difference between nursing students' attitude towards learning, and their knowledge of common situations that threaten human adaptation in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

Table 4.7a A multiple linear regression table below shows that in testing for the difference between the nursing students' attitude towards learning and their knowledge of common situations that threaten human adaptation before and after the exposure to intervention, since a previous preliminary analysis evaluating the homogeneity of regression assumption indicated that the interaction between the covariate (attitude) and dependent variable (pre and post test scores) was significantly different as a fraction of the independent variable (group) $F(1,161) = 0.000 < 0.05$, a multiple linear regression was used to predict post-intervention knowledge scores from pre-intervention scores and group with covariates of attitude at pre and post-intervention. An important regression equation evolved $F(4, 160) = 44.950$, $p = 0.000$ with R^2 of 0.529. The post-intervention knowledge score = – 9.104 (group) + 0.293 (pre-intervention knowledge score) + 0.036 (pre-intervention attitude score) – 0.029 (post-intervention attitude score) where group is coded as 1 = intervention and 2 = control. Knowledge Scores at post-intervention increased by 0.036 for each knowledge score at pre-intervention and the intervention group scored 9.104 more than the control group. Both knowledge scores at pre-intervention and the groups are significant predictors of knowledge scores at post-intervention. In addition, nursing students' attitude towards learning had a significant effect on knowledge at pre-intervention, $t = 2.197$, $p = 0.029 < 0.05$, and post-intervention $t = -1.018$, $p = 0.010 < 0.05$.

The findings indicate a major variance between student nurses' knowledge of common situations that threaten human adaptation in the two groups before and after the intervention and attitude of the nursing students towards learning had effect on participants' knowledge of common situations that threaten human adaptation before and after the intervention. This is also significant within groups.

Table 4.7a: Table of multiple linear regression presenting difference between nursing students' attitude towards self-directed learning, and their knowledge of common situations that threaten human adaptation in the two groups at pre and post-intervention.

Group	β	t	p-value
(Constant)		5.531	0.000
Nursing students' knowledge of common situations that threaten human adaptation (Pre- intervention Test score)	0.336	6.111	0.000
Group	-0.794	-6.945	0.000
Attitude pre-intervention score	0.127	2.197	0.029
Attitude post- intervention score	-0.116	-1.018	0.010

Dependent variable = Post-intervention knowledge score

Model	SS	df	MS	F	p-value
Constant	2857.114	4	714.279	44.950	0.000
Residual	2542.498	160	15.891		
Total	5399.612	164			

$R^2 = 0.529$ (Adjusted $R^2 = 0.517$)

Table 4.7b: Table of multiple linear regression showing the difference between nursing students' attitude towards learning, and their knowledge of common situations that threaten human adaptation in the intervention group.

Group	β	t	p-value
(Constant)		14.424	0.000
Nursing students' knowledge of common situations that threaten human adaptation (Pre- intervention Test score)	0.576	6.551	0.000
Attitude score difference	-0.091	-1.039	0.302

Dependent variable = Nursing students' knowledge of common situations that threaten human adaptation in the intervention group at post-intervention

Model	SS	df	MS	F	p-value
Constant	526.513	2	263.256	22.677	0.000
Residual	986.760	85	11.609		
Total	1513.273	87			

$R^2 = 0.348$ (Adjusted $R^2 = 0.333$)

Table 4.7c: Table of multiple linear regression presenting the difference between nursing students' attitude towards learning, and their knowledge of common situations that threaten human adaptation in the control group.

Group	β	t	p-value
(Constant)		15.373	0.000
Nursing students' knowledge of common situations that threaten human adaptation (Pre- intervention Test score)	0.269	2.457	0.016
Attitude score difference	-0.201	-1.835	0.021

Dependent variable = Nursing students' knowledge of common situations that threaten human adaptation in the control group at post-intervention

Model	SS	df	MS	F	p-value
	209.661	2	104.831		
Constant				5.078	0.079
Residual	1527.767	74	20.646		
Total	1737.429	76			

$R^2 = 0.121$ (Adjusted $R^2 = 0.097$)

$H_0$4: There is no significant difference between the nursing students' preferred learning strategy in the control and intervention groups at pre and post-intervention in Southwestern Nigeria.

Table 4.8a: Difference between the nursing students' preferred learning strategy in the two groups at pre and post-intervention.

A preliminary analysis evaluating the homogeneity of regression assumption done previously indicated that the interaction between the covariate and the dependent variable was significantly different as a fraction the independent variable (group), $F(1,161) = 0.000 < 0.05$.

Therefore, a multiple linear regression was used to forecast the post-intervention (preferred learning strategy) score from pre-intervention (preferred learning strategy) score and group (intervention and control groups). A significant regression equation evolved, $F(2.162) = 92.365$, $p = 0.000$ with an R^2 of 0.533.

The nursing students' predicted preferred learning strategy score at post-intervention was =32.599 – 5.206 (group) + 0.430 (preferred learning strategy at pre-intervention) where group was coded as 1= intervention and 2 = control. A preferred learning strategy increase of 0.430 was recorded for each preferred learning strategy score at post intervention and the intervention group scored 5.206 more than the control group.

Both preferred learning strategy score at pre-intervention and group was significant predictors of preferred learning score at post. $P=0.000 < 0.05$. There is a substantial difference.

The results suggests a major variance in the chosen learning strategy mean values of the student nurses in the intervention and control groups at post-intervention. There is also significant difference within intervention and within control groups respectively.

Table 4.8a: Table of multiple linear regression showing the difference between the nursing students' preferred learning strategy in the two groups.

Variable	**β**	**t**	**p-value**
(Constant)		16.624	0.000
Pre-intervention preferred learning strategy	0.464	8.625	0.000
Group	-0.598	-11.103	0.000

Post-intervention preferred learning strategy

Model	**SS**	**df**	**MS**	**F**	**p-value**
Constant	1659.057	2	829.528	92.365	0.000[b]
Residual	1454.919	162	8.981		
Total	3113.976	164			

$R^2 = 0.533$ (Adjusted $R^2 = 0.527$)

Table 4.8b: Paired T-test showing the difference between the nursing students' preferred learning strategy in the intervention group at pre and post-intervention (Within Intervention group).

Preferred learning strategy SDL	**N**	**Mean ± SD**	**T**	**p-value**
Interv. group				
Pre-Interv Score	77	36.9 ±4.9		
			-10.128	0.000
Post-interv Score	77	43.29 ±2.4		

Table 4.8c: Paired T-test showing the difference between the nursing students' preferred learning strategy in the control group at pre and post-intervention (Within control group)

Preferred learning strategy SDL	**N**	**Mean ± SD**	**T**	**p-value**
Control group				
Pre-Interv Score	88	37.67 ±4.5		
			-3.320	0.001
Post-interv Score	88	38.38 ±4.3		

$H_0$5 There is no significant difference between the nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation in the intervention and control groups at pre and post-intervention.

Table 4.9a: Difference between the nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation in two groups.

Table 4.9a below shows that in testing for the difference between the nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation before and after the intervention, since a previous preliminary analysis evaluating the homogeneity of regression assumption indicated that the interaction between the covariate (preferred learning strategy) and dependent variable (pre and post test scores) was significantly different as a fraction of the independent variable (group) $F(1,161) = 0.000 < 0.05$, a multiple linear regression conducted to forecast the post-intervention knowledge scores from pre-intervention scores and group with covariates of preferred learning strategy at pre and post-intervention. A significant regression equation was found $F(3, 161) = 57.474$, $p = 0.000$ with R^2 of 0.517. The post-intervention knowledge score = – 7.440 (group) + 0.300 ((pre-intervention knowledge score) + 0.026 (pre-intervention preferred learning strategy score) + 0.080 (post-intervention preferred learning strategy score) where group is coded as 1 = intervention and 2 = control. Knowledge Scores at after the intervention increased by 0.026 for each knowledge score at before the intervention and the intervention group scored 7.440 more than the control group. Both knowledge scores at pre-intervention and the groups are significant predictors of knowledge scores at post-intervention. However, nursing students' preferred learning strategy did not have a significant effect on knowledge of common situations that threaten human adaptation at pre- intervention, $t = 0.393$, $p = 0.695 > 0.05$ and at post-intervention $t = 0.911$, $p = 0.364 > 0.05$.

The results suggest a major difference between the nursing students' knowledge of common situations that threaten human adaptation in two groups at pre and post-intervention but the preferred learning strategy of the nursing students have no substantial effect on the nursing students' knowledge.

Table 4.9a: A multiple linear regression table showing the difference between nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation in the intervention and control groups

Group	β	t	p-value
(Constant)	32.701	7.411	0.000
Knowledge of common situations that threaten human adaptation (Pre-intervention Test score)	0.300	6.215	0.000
Group	-7.440	-9.690	0.000
Pre-intervention preferred learning strategy score	0.026	0.393	0.695
Post-intervention preferred learning strategy score	0.080	0.911	0.364

Dependent variable = Post-intervention common situations that threaten human adaptation knowledge score

Model	SS	df	MS	F	p-value
Constant	2792.304	3	930.768	57.474	0.000
Residual	2607.308	161	16.194		
Total	5399.612	164			

$R^2 = 0.517$ (Adjusted $R^2 = 0.508$)

Table 4.9b: (Within Intervention Group)

A multiple linear regression table showing the difference between the nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation.

Regression analysis of the intervention group alone was done. The results showed that, there is a significant difference in the preferred learning strategy of nursing students at pre and post intervention within the intervention group, $t = 0.226$; $p = 0.022 < 0.05$, however, the knowledge of medical-surgical nursing was not significantly affected by the nursing students' preferred learning strategy at post intervention stage using the knowledge test score difference $t = 1.027$; $p = 0.308 > 0.05$

Table 4.9b: A multiple linear regression table showing the difference between the nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation within the intervention group.

Intervention Group	**B**	**t**	**p-value**
(Constant)		18.695	0.000
Nursing students' preferred learning strategy (post-intervention)	0.026	0.226	0.022
Knowledge test score difference	0.119	1.027	0.308

Model	**SS**	**df**	**MS**	**F**	**p-value**
Constant	6.572	2	3.286	0.541	0.585
Residual	449.558	74	6.075		
Total	456.130	76			

$R^2 = 0.014$ (Adjusted $R^2 = -0.012$)

Table 4.9c: A multiple linear regression table showing the difference between the nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation within the control group.

A regression analysis of the control group alone was done showing the difference between nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation in the control group before and after the intervention. The findings revealed that within the control group, there is no significant difference in the preferred learning strategy of nursing students before and after intervention, $t = -18.789$; $p = 0.600 > 0.05$ and nursing students' preferred learning strategy did not have a significant effect on knowledge of medical-surgical nursing at post-intervention using the knowledge test score difference $t= -0989$; $p =0.325 >0.05$

Table 4.9c: A multiple linear regression table showing the difference between nursing students' preferred learning strategy and their knowledge of common situations that threaten human adaptation in the control group.

Control Group	**B**	**t**	**p-value**
(Constant)		3.191	0.002
Nursing students' preferred learning strategy (post-intervention)	-0.898	-18.789	0.600
Knowledge test score difference	-0.047	-0.989	0.325

Model	**SS**	**df**	**MS**	**F**	**p-value**
	1343.490	2	671.745		
Constant				176.571	0.000
Residual	323.374	85	3.804		
Total	1666.864	87			

$R^2 = 0.806$ (Adjusted $R^2 = 0.801$)

$H_0$6: There is no significant relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

Table 4.10a: Relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' preferred learning Strategy in the two groups

A one-way analysis of covariance (ANCOVA) and regression

Table 4.10a shows that in testing for the relationship between selected variables (Age, Type of secondary school attended and Gender) and student nurses' preferred learning strategy in the intervention and control groups at pre and post-intervention, a preliminary analysis evaluating the homogeneity of regression assumption was done, it indicated that the interaction between the covariate (preferred learning strategy pre score) and dependent variable (preferred learning strategy post score) was significantly different as a fraction of the independent variable (group) $F(1,161) = 0.000 < 0.05$. Thus a multiple linear regression was used to predict preferred learning post intervention scores from pre-intervention scores and group with covariates age, sex, and type of secondary school attended. A significant regression equation was found $F(5, 159) = 37.626$, $p = 0.000$ with R^2 of 0.542. The post-intervention preferred learning strategy score -5.147 group + 0.430 (pre-intervention preferred learning strategy score) + 0.135 (age group) – 1.288 (gender) + 0.171 (type of secondary school attended) where group is coded as 1 = intervention and 2 = control. Preferred learning strategy score at post-intervention increased by 0.430 for each preferred learning strategy score at pre-intervention and the intervention group scored 5.147 more than the control group. Both preferred learning strategy scores at pre-intervention and the groups are significant predictors of preferred learning strategy. However, age group, gender and school attended had no major effect on the nursing students' choice of preferred learning strategy.

Table 4.10a: Relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy.

Table 4.10a: Table of multiple linear regression showing the relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy in the intervention and control groups at pre and post-intervention

Preferred learning strategy post-intervention score					
Group	**B**	**t**		**p-value**	
Constant		12.909		0.000	
Preferred learning strategy					
Pre-intervention score	0.430	8.552		0.000	
Group	-5.147	-10.567		0.000	
Age group	0.135	0.457		0.648	
Gender	-1.288	-1.478		0.141	
Type of Secondary School Attended	0.171	0.949		0.344	
Model	**SS**	**df**	**MS**	**F**	**p-value**
Constant	1687.639	5	337.528	37.626	0.000
Residual	1426.337	159	8.971		
Total	3113.976	164			

$R^2 = 0.542$ (Adjusted $R^2 = 0.528$)

(Within Intervention Group)

Table 4.10b: Relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy within intervention group.

To buttress the findings from the regression analysis showing relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy in the two groups before and after intervention in Southwestern Nigeria, a regression analysis of the intervention group alone was done showing the relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy in the intervention group before and after the intervention in Southwestern Nigeria.

The findings revealed that within the intervention group, there is a significant difference in the preferred learning strategy of nursing students before and after exposure to intervention, $t = 0.199$; $p = 0.000 < 0.05$ but the selected variables (Age, gender and Type of secondary school attended) did not have any significant relationship on nursing students' choice of preferred learning strategy, age- $t = 0.424$; $p = 0.673$/ gender- $t = -1.571$; $p = 0.121$ while type of secondary school attended – Public secondary school – $t = 0.583$; $p = 0.592$/ Federal Secondary School- $t = -0.189$; $p = 0.851$/ Mission Secondary School- $t = 0.675$; $p = 0.641$ and Private Secondary School – $t = 0.469$; $p = 0.641$. None had a significant relationship.

Table 4.10b: Table of multiple linear regression showing the relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning in the intervention group at pre and post-intervention.

Dependent variable = Preferred learning strategy post-intervention score					
Interv. Group	**B**	**t**	**p-value**		
Constant		17.616	0.000		
Preferred learning strategy	0.024	0.199	0.000		
Pre-intervention score					
>20years	0.057	0.424	0.673		
Female	- 0.189	-1.571	0.121		
Public Sec School	0.078	0.583	0.592		
Federal Sec School	-0.024	- 0.189	0.851		
Mission Sec School	0.089	0.675	0.502		
Private Sec. School	0.069	0.469	0.641		
Model	**SS**	**df**	**MS**	**F**	**p-value**
Constant	21.621	6	3.604	0.581	0.745
Residual	434.509	70	6.207		
Total	456.130	76			

$R^2 = 0.047$ (Adjusted $R^2 = - 0.034$)

(Within Control Group)

Table 4.10c: Relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy in the control group before and after exposure to intervention.

A regression analysis of the control group alone was done showing the relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy in the control group before and after the intervention in Southwestern Nigeria.

The findings revealed that within the control group, there is a significant difference in the preferred learning strategy of nursing students at pre and post intervention, $t = -1.648$; $p = 0.387 > 0.05$ and the selected variables (Age, gender and Type of secondary school attended) did not have any significant relationship on nursing students' choice of preferred learning strategy, age- $t = -0.985$; $p = 0.328$/ gender- $t = -1.162$; $p = 0.249$ while type of secondary school attended – Public secondary school – $t = 1.533$; $p = 0.192$/ Federal Secondary School- $t = -0.276$; $p = 0.783$/ Mission Secondary School- $t = 1.565$; $p = 0.122$ and Private Secondary School – $t = 1.224$; $p = 0.224$. None were significant.

Table 4.10c: Table of multiple linear regression showing the relationship between selected variables (Age, Type of secondary school attended and Gender) and nursing students' choice of preferred learning strategy in the control group at pre and post-intervention.

Dependent variable = Preferred learning strategy post-intervention score					
Control Group	**B**	**t**	**P-value**		
Constant		3.426	0.001		
Preferred learning strategy	-0.891	-1.648	0.387		
Pre-intervention score					
>20years	-0.048	-0.985	0.328		
Female	-0.056	-1.162	0.249		
Public Sec School	0.083	1.533	0.192		
Federal Sec School	0.014	0.276	0.783		
Mission Sec School	0.079	1.565	0.122		
Private Sec. School	0.063	1.224	0.224		
Model	**SS**	**df**	**MS**	**F**	**p-value**
Constant	1362.844	6	227.141	60.517	0.000
Residual	304.020	81	3.753		
Total	1666.864	87			

$R^2 = 0.904$ (Adjusted $R^2 = 0.818$)

$H_0$7: There is no significant relationship between influencing factors and nursing students' preferred learning strategy in the intervention and control groups at pre and post-intervention in Southwestern Nigeria.

Table 4.11a: Shows relationship between influencing factors and nursing students' preferred learning strategy in the two groups before and after the intervention

A one-way analysis of covariance (ANCOVA) and regression

Table 4.11a below shows that in testing for the relationship between the influencing factors (staff strength, teaching methods, type of examination questions, internet access, library facilities, workload and weeks spent on clinical experience) and preferred learning strategy in the two groups before and after the groups, a preliminary analysis evaluating the homogeneity of regression assumption was done, it indicated that the interaction between the covariate (preferred learning strategy pre score) and dependent variable (preferred learning strategy post score) was significantly different as a fraction of the independent variable (group) $F(1,161) = 0.000 < 0.05$. Thus, a multiple linear regression was used to predict preferred learning strategy at post-intervention from preferred learning strategy, pre-intervention scores and group with covariates staff strength, teaching methods, type of examination questions, internet access, library facilities, workload and weeks spent on clinical experience.

A significant regression equation was found $F(12, 152) = 145.228$, $p = 0.000$ with R^2 of 0.560. The post intervention preferred learning strategy score = -0.820, group +0.416 (pre-intervention preferred learning strategy score) -0.757 (staff strength) – 0.237 (teaching methods) + 0.266 (type of examination questions) + 0.342 (internet access) – 0.254 (library facilities) + 0.587 (workload) - 4.741 (weeks spent on clinical experience) where group is coded as 1 = intervention and 2 = control.

Preferred learning strategy score at post-intervention increased by 0.416 for each preferred learning strategy score at pre-intervention and the intervention group scored 5.820 more than the control group. Both preferred learning strategy scores at pre intervention and the groups are significant predictors of preferred learning strategy. However, staff strength, teaching methods, type of examination questions, internet access, library facilities, workload and weeks spent on clinical experience have no significant effect on the nursing students' preferred learning strategy.

Table 4.11a: Multiple linear regression table showing the relationship between influencing factors and nursing students' preferred learning strategy in the two groups before and after the intervention

Group	B	t	p-value
Constant	75.060	2.735	0.007
Preferred learning strategy pre intervention score	0.416	7.929	0.000
Group	-5.820	-9.693	0.000
Staff strength	-0.757	-1.177	0.241
Teaching Methods	-0.237	-0.389	0.698
Type of examination questions	0.266	0.413	0.680
Internet access	0.342	0.635	0.527
Library facilities	-0.254	-0.494	0.622
Workload	0.587	1.174	0.242
Weeks on Clinical experience	-4.741	-1.599	0.112

Model	SS	df	MS	F	p-value
Constant	1742.742	12	145.228	16.098	0.000
Residual	1371.234	152	9.021		
Total	3113.976	164			

$R^2 = 0.560$ Adjusted $R^2 = 0.525$

(Within Intervention Group)

Table 4.11b: Multiple linear regression table showing the relationship between influencing factors and nursing students' preferred learning strategy in the intervention group before and after the intervention in Southwestern Nigeria.

A regression analysis of the intervention group alone was done showing the relationship between influencing factors and preferred learning strategy in the intervention group before and after the intervention in Southwestern Nigeria.

The findings revealed that within the intervention group, there was a major difference in the preferred learning strategy of nursing students at pre and post intervention, $t = 2.144$; $p = 0.006 < 0.05$ only use of the library had a significant relationship with nursing students' choice of preferred learning strategy at post intervention, $t = 2.311$; $p = 0.024 < 0.05$

Table 4.11b: Multiple linear regression table showing the relationship between influencing factors and nursing students' preferred learning strategy in the intervention group before and after exposure to the intervention

Group	**B**	**t**	**p-value**
Constant		18.920	0.000
Preferred learning strategy pre intervention score	0.216	2.144	0.006
Staff strength	0.156	1.302	0.197
Teaching Methods	- 0.007	-0.060	0.952
Type of examination questions	0.201	1.083	0.283
Internet access	0.104	0.554	0.581
Library facilities	0.282	2.311	0.024
Workload	0.007	-0.060	0.952
Weeks on Clinical experience	-3.241	-1.528	0.813

Model	**SS**	**df**	**MS**	**F**	**p-value**
	82.714		8.271	1.462	0.174
Constant		10			
Residual	373.415	66	5.658		
Total	456.130	76			

$R^2 = 0.181$ Adjusted $R^2 = 0.057$

(Within Control Group)

Table 4.11c: Multiple linear regression table showing the relationship between influencing factors and nursing students' preferred learning strategy in the control group at pre and post-intervention in Southwestern Nigeria.

A regression analysis of the control group alone was done showing the relationship between influencing factors and preferred learning strategy in the control group before and after intervention in Southwestern Nigeria.

The findings revealed that within the control group, there was no substantial difference in the preferred learning strategy of nursing students before and after the intervention, $t = 17.777$; $p = 0.100 > 0.05$ and none of the influencing variables had a major relationship with nursing students' choice of preferred learning strategy at post intervention, $t = 2.311$; $p = 0.024 < 0.05$

staff strength- $t = 0.736$; $p = 0.404$/ teaching methods- $t = 1.107$; $p = 0.272$/ type of examination questions- $t = 1.593$; $p = 0.115$/ internet access- $t = -1.426$; $p = 0.158$/ library facilities – $t = 0.247$; $p = 0.806$/ workload- $t = -1.064$; $p = 0.291$/ weeks spent on clinical experience- $t = -0.611$; $p = 0.543$. None of the influencing factors had a significant correlation on nursing students' choice of preferred learning strategy.

Table 4.11c: Multiple linear regression table showing the relationship between influencing factors and nursing students' preferred learning strategy in the control group before and after intervention

Group	B	t	p-value
Constant		2.398	0.019
Preferred learning strategy pre intervention score	0.921	17.777	0.100
Staff strength	0.038	0.736	0.404
Teaching Methods	0.061	1.107	0.272
Type of examination questions	0.251	1.593	0.115
Internet access	-0.224	0-1.426	0.158
Library facilities	0.015	0.247	0.806
Workload	0.055	-1.064	0.291
Weeks on Clinical experience	-0.031	-0.611	0.543

Model	SS	df	MS	F	p-value
Constant	1367.890	11	124.354	31.611	0.000[b]
Residual	298.973	76	3.934		
Total	1666.864	87			

$R^2 = 0.821$ Adjusted $R^2 = 0.795$

4.4 Discussion of Findings

This research was carried out to assess the outcomes of self-directed learning and traditional didactic lecture-based method among Nursing Students in Southwestern Nigeria. The investigation was conducted among nursing students randomly selected from four different accredited nursing training institutions in Southwestern Nigeria. The nursing students who participated were divided into the intervention and control groups using the coin-toss method (random sampling). The intervention group was exposed to eight weeks of interaction using an adopted and modified self-directed learning module to teach selected topics (common situations that threaten human adaptation) in medical-surgical nursing course. The control group had the same topics taught by recruited research assistants who were trained and are nurse educators using the traditional didactic lecture-based methods. Test items covering the selected topics in medical-surgical nursing course (common situations that threaten human adaptation) were administered before and after exposing the nursing students in the two groups to the intervention.

The findings indicates that the student nurses who took part in the study were homogeneous in nature, the educational intervention was effective as there was an outstanding significant increase in nursing students' knowledge of common situations that threaten human adaptation in the intervention group after intervention more than the increase in the nursing students' knowledge of common situations that threaten human adaptation in the control group.

Socio-demographic information of the nursing students in the intervention and control groups at pre intervention.

The study was carried out amongst nursing students of four randomly selected schools of nursing. The demographic variables did not show any substantial difference between the groups except in educational qualification attained before going for nursing training which was significantly different between the groups, indicating that more nursing students in the intervention group had gone to other institutions of higher learning before coming for

nursing which proves their love for the profession. Year in the present programme was significantly different among the two groups because one of the schools introduces her nursing students to medical-surgical nursing for the first time when they are in 300 level according to the curriculum the school is running. This shows that the intervention and control groups were homogeneous. The 165 nurses in training who took part in the study to the post-intervention stage were made up of 13(7.9%) males and 152 (92.1%) female students. In Nigeria, females dominate the nursing profession. This is because females are believed to have a caring nature than the males, the young girls upon leaving high school automatically fall in love with this caring profession, but nursing has a poor image, it is seen as a profession for drop outs. It is believed that people go into nursing out of frustration and men would not like to be identified with feminism and failure. This is in correlation with what obtains in other countries, Meadus and Twomey (2011) stated that while the number of men in the nursing profession is rising, the percentage of men in the nursing profession has not increased significantly, and this is attributed to the traditional female representation of nursing. The feminine essence of nursing was so pervasive that the profession's nurturing picture was used to symbolize the epitome of femininity (O'Lynn 2004). Just 5 % of nurses were men in Canada and the United States (Meadus and Twomey 2011), (Mullan and Harrison 2008). Men only account for ten and four percent of nurses (registered nurses) in England and Ireland (Fisher, 2009), respectively (Keogh and O'Lynn, 2007). Just about 23% of Iran's nurses were men in 2006 (Khosravi, Najafi, Rahbar, Motlagh, and Kabir, 2009). The UKCC further reports that over the last two decades, the number of registered male nurses has risen from just 1.4% to 9.75% well ahead of the US, where 5.4% of nurses are men, Ireland (7.3%), Australia (7.8%) and Sweden (8%) (Okanlawon, 2010). Although more men are joining the nursing profession, there is still a gender imbalance of men in nursing as more males leave the profession than females (Curtis, Robinson and Netten, 2009), (McLaughlin, Muldoon and Netten, 2009). Houshmand, Sayf, and Nikbakht (2005) recorded that bad nursing image and unclear nursing social status were the main causes of male nurses leaving the profession in Iran.

The age distribution of the nursing students revealed that they were between 19–25 years with a mean age of intervention group 20.88±3.52; control group 21.47±2.61 respectively.

This indicates that majority of the study participants were mostly youngsters in the early twenties who are enrolled in a nursing school immediately they completed their secondary schools. Though they are considered adults as the Nigerian constitution says anybody from eighteen years (18 years) above is an adult, these young adults may still need a tutor's support to meet their learning needs, more so they are still at a very active age when learners are involve in many social engagements and may not have sufficient time to search for learning materials for a long time. A greater number of nursing students began nursing training as soon as they finished their secondary school. By comparison, it is not in agreement with Freedman's (1985) claim that mature learners are inspired enough to want to study more after work and are expected to come for training after recognising a learning requirement.

The nursing students have adequate lecturers in their various schools of nursing training, findings showed that 137 (83.0%) asserted that they had 15 academic staff in their various schools or department of nursing respectively. This is in agreement with the recommendations of the Nursing and Midwifery Council of Nigeria who recommended that the teacher–student ratio for Basic nursing training institutions in Nigeria should be 1:10 or less (N&MCN, 2016).

Nursing students' knowledge of common situations that threaten human adaptation in the intervention and control group at pre- intervention.

The study participants had some knowledge of common situations that threaten human adaptation at pre- intervention. The intervention group had a common situations that threaten human adaptation mean score value = 21.4 ± 6.0, the control group had a common situations that threaten human adaptation knowledge mean score value = 22.4 ± 7.0 with no statistical significance p= 0.062 > 0.05. This may be because the nursing programme is a course that incorporates a duration of teaching in the classroom with clinical experience for the learners while in training prior to graduation. To boost their experience, skills and career development, care for the sick is emphasised to require more training by healthcare personnel both while they are still learning and after certification. This is expressed in the findings of the study that more than an average number of nursing students in the control

group were able to incorporate the information from real-life clinical experience into a more complex situation when they were needed in the common situations that threaten human adaptation pre-test during the baseline skill level evaluation of the nursing students. Eighty three percent (83%) of the nursing students indicated that they had each gone for six weeks clinical experience with seventeen percent (17%) who said they had seven weeks clinical experience each. Based on the assumption that during the students' clinical posting, the student nurses must have encountered some of the selected topics and disease conditions as they cared for patients and some who were gifted to be self-directed learners must have gone out independently to get to learn about the disease conditions and were able to integrate it into their studies. This is in line with Nokdee's (2007) comments that patient care can stimulate further learning for healthcare workers, even in practice, to improve their expertise, abilities and career advancement. Kozier and Erbs (2021) in agreement stated that Self-directed learning is better promoted as health care personnel face crucial situations, deal with unplanned incidents and treat patients on a daily basis so that they have many learning opportunities from real work experiences.

Nursing students' knowledge of common situations that threaten human adaptation in the intervention and control group at post-intervention.

After the intervention, there was a great improvement in the student nurses' knowledge of common situations that threaten human adaptation in the intervention group compared to the knowledge of those in the control group. At post-intervention, the intervention group had a knowledge mean score value = 35.1 ± 4.8, the control group had a knowledge mean score value = 27.9 ±4.2. This was significant at $p= 0.000 < 0.05$.

This was after utilizing self-directed learning method to teach the intervention group and traditional didactic lecture-based method for the control group. In grading the two groups (intervention and control groups) it was observed that the self-directed learning method produced an outstanding improvement in knowledge than the control group, although both groups had notable improvement in their level of knowledge compared with the pre-intervention test results. This may be because all the nursing schools within Southwestern Nigeria are using a uniform curriculum and it is not surprising, given that these individuals

are undergoing a competitive nursing training programme. This is in correlation with the findings of Peine, Kabino and Spreckelsen, (2016) in an interventional study in the course of a modern German medical curriculum which revealed remarkable improvements among students in the medical school in Germany particularly in comparison to the pre-test results. Individuals in the non-self-educated learning groups achieved scores of 14.71 (seminar) and 14.37 (reading), while the self-educated learner groups achieved higher scores of 17.23 (e-learning) and 15.81 (self-study). All groups significantly improved in the post-test ($p < 0.001$). The study further revealed that the nursing students' attitude had a significant effect on knowledge acquisition at post-intervention, but the choice of learning strategy had no major effect on the knowledge at post-intervention.

Nursing students' attitude towards self-directed learning in the intervention and control groups

In the intervention group the nursing students' attitude towards self-directed learning improved greatly after the intervention, unlike the nursing students in the control group who did not reveal much change in attitude towards learning. This may be as a result of exposure of the nursing students in the intervention group to skills of searching for and discovering useful educational information on their own to make them lifelong learners during the eight weeks interaction. At post-intervention, the nursing students' attitude to learning had a much improved mean value and a significant effect on learning outcome. This is in agreement with Simelane, Kunene and Mhlongo's (1997) research findings. They carried out a study on the attitudes of the student nurses towards the seminar method of teaching. A survey was undertaken among twenty five third and fourth year student nurses using a questionnaire. It was discovered that the majority of student nurses of the basic nursing programme were adolescents who resent any time consuming academic commitment which interferes with their private life. In addition, they discovered a lack of correlation between teaching methods used at high school and those used at the nursing college leading to poor adjustment to the seminar method as a student-centered, independent learning method.

Preferred learning strategy between Self-Directed Learning and Traditional Didactic Lecture-based Method among nursing students in Southwestern Nigeria.

The nursing students preferred the traditional didactic lecture-based method at pre-intervention. But at post-intervention all the nursing students in the intervention group preferred the self-directed learning method unlike the control group where the participants' choice was still the traditional didactic lecture-based method. The study revealed that there is a significant difference between the preferred learning strategy mean values of the nursing students in the intervention and control groups at post-intervention.

This may be linked to the fact that the majority of the student nurses are young school leavers; mostly young adults in their early twenties who entered nursing training immediately they completed their secondary schools. Though they are considered adults, this category of learner will still require the assistance of an instructor to meet their learning requirements. It may also be as a result of the dominant teaching method in their pre-nursing schools. Achuonye (2015) conducted a study called Predominant Learning Methods in Schools: Implication of Implementation of Curriculum in Education, Science and Technology. She discovered that secondary school teachers in algebra, science and technology always use the lecture method of teaching and the rote system of reading. Question and response, presentation, innovative or task approaches were sometimes used, while teaching techniques such as debate, collaborative / cooperative, or peer-tutoring were seldom utilised. Other strategies that were never used include simulation / game, discovery / inquiry, contextual and problem-based methods.

However, the study found that the age group, sex and type of school attended had no significant effect on selecting a desired learning approach for nursing students.

Factors influencing the choice of learning strategy among nursing students in Southwestern Nigeria.

The study revealed that factors influencing the choice of learning strategy among the nursing students include: Number of teachers, use of application questions during examinations and number of weeks spent on Clinical experience. All the other factors listed did not have any significant effect on the nursing students' choice of learning strategy. All the nursing students stated that they had enough academic staff in their schools

respectively. This implies that there is sufficient number of faculty to effectively carry out teaching, clinical instruction, and other responsibilities. Only 58 (35.2%) of the nursing students said the teachers set application questions that the answers cannot be found in textbooks this is supported by 118 (71.5%) who confirmed that a good memory is all they need to pass their courses. This indicates that the lecture based teaching mode and rote learning dominates the teaching/learning method that is practiced among the nursing students. To substantiate these findings, Achuonye (2015) discovered that instructors in tertiary schools always used rote teaching methods and lecture method of teaching for algebra, science and technology. Sometimes they used demonstration, experimental, and project methods. While discussion, question and answer, simulation / game, collaborative / cooperation, or peer tutoring methods of teaching were rarely used. Never used approaches include play-way, discovery / inquiry, situational, or problem-based strategies in tertiary institutions.

This is an indication that lecture method of teaching still dominates teaching/learning activities in nursing schools. It could also be as a result of having a wide curriculum to cover over a short period. In order not to waste time, the teachers decided to utilize the teaching method that would cover most of the required topics faster.

This is in agreement with the statements of Mang (2013) who is of the opinion that lecture method is still high on the list when considering prevailing teaching strategies in schools and colleges used to deliver an enormous volume of information within a short period for any group size. This confirms the findings of Achuonye (2015) who found that the ignorance about teaching techniques and their value, inadequate equipment, lengthy content / curriculum overload, and class population / level are some of the factors used by instructors to determine the teaching strategy to adopt.

All the nursing students indicated that they have had clinical experience for between 6 and 7weeks as at the time of data collection. It indicates that they may have encountered some of the disease conditions chosen for use during learning interaction, if they were prone to self-directed learning they would have taken their time to learn about the disease conditions. In Nigeria, the Nursing and Midwifery Council of Nigeria stated in the General Nursing Training Program Curriculum that clinical posting for a specified number of weeks is a mandatory prerequisite prior to qualification as a professional nurse to ensure sufficient

exposure to nursing skills at the end of the training (N&MCN, 2016). This is in agreement with Dunn and Burnett (1995) who claimed that clinical experience was an essential component of nursing education at all times. It helps prepare student nurses to be able to carry out nursing skills as expected as well as have an in depth knowledge of the clinical principles. The clinical practice also encourages students to utilise their critical thinking skills to solve problems. Edwards, Smith, Courtney, Finlayson and Chapman (2004) noted in their research noted that internship in nursing programmes equip nursing students with professional competence allowing them to apply theory to solve real life problem and to network with senior colleagues in the profession. Clare, White, Edwards and Van Loon's (2002) investigation on the nursing syllabus, internship and admission into nursing programmes in Australia revealed that student nurses and their senior colleagues prefer internship in hospital settings which offer the opportunity for learners to meet the increasing expectations placed on learners upon completion of their studies.

Among the nursing students, 99 (60.0%) stated that there is a heavy homework load on them. This indicates that to be able to cover all that is required for nursing training, there is a need for extra studies.

The heavy homework load should motivate nursing students to develop a self-study habit which would promote self-directed learning but the contrary was the case. The nursing students specified that they spent between one hour and above fifty hours every week on personal studies or doing homework. Above average 90 (54.5) said their school library provides enough current educational information for their use, but below average indicated that they make use of the internet connections in the school and hostel and have current journals in their school library. This indicates that despite the availability of current information in the school library with internet connectivity in the schools and hostels, most of the students lack free access to these resources, below average of the nursing students indicated that they have free access to resources for information in their schools.

When the nursing students were asked about the personal effort they make to access current educational information, their responses indicated that the students do not visit the school library only five (5) 3.1% indicated they make use of the school library at pre-intervention. The majority said they make use of their handsets when they need to assess current

educational information. Students see the use of library as time consuming. When students do not visit the library they will not know what is available for their use in the library. It may be attributed to the nursing students' inability to access these facilities in their schools which is a sign of poor institutional support. These findings are unlike the findings of Adebayo and Otunla, (2015) who came up with the results that print materials are the main sources of information used by learners who are engaged as active library users. Asking peers and librarians for educational material ranked highest among sources contacted for information. In searching for information, ease of access and existence of information resources in the library were the most favoured characteristics.

The use of the library among the nursing students may also be affected by their individual nature and lack of time. This corroborates the findings of Adebayo and Otunla (2015) they discovered that the challenges learners encounter when accessing information resources include lack of time, location of library and attitude of library staff. This is in support of the findings of Simelane, Kunene and Mhlongo, (1997) that carried out a study on the attitudes of the student nurses towards the seminar method of teaching. A survey was undertaken among twenty five third and fourth year student nurses using a questionnaire. It was discovered that the majority of student nurses of the basic nursing programme are adolescents who resent any time consuming academic commitment which interferes with their private life. Also, Library facilities are inadequate, which makes it more difficult and more time consuming for nursing students to find suitable material for preparation of quality presentations. In support again is Mei-hui's (2008) findings in his study of factors influencing self-directed learning readiness among Taiwanese nursing students, he came up with the findings that a number of factors which influenced the outcomes of these learning activities, including teacher-student interaction, facilitation process and learning resources. In this study, only the use of library influenced preferred learning strategy in the intervention group at post-intervention.

Self-Directed Learning Readiness Level of the Nursing students in the Intervention and Control Groups at Pre and Post Intervention.

The nursing students in both intervention and control groups had similar self-directed learning readiness level at pre-intervention and a significant difference between these self-directed learning readiness level at post-intervention as a result of the intervention. The intervention group had a higher assessment score. The SDL preparedness of the student nurses also reflected a significant improvement among the intervention group at post-intervention. This could be attributed to the self-directed learning educational interaction which the student nurses in the intervention group were exposed to for eight weeks. It motivated them to adopt and utilise self-directed learning strategies which exposed them to a lot of new educational discoveries and improved the learning characteristics they portrayed. This corroborates a study by Soliman and Al-Sheik (2015) in Saudi which found that medical students with high passion for learning and a high mean score for self-control and a great passion for acquiring knowledge, however, in self-management skills had a lower mean score, indicating that students needed assistance in planning time management, and in utilising systematic methodology for learning.

CHAPTER FIVE

SUMMARY, CONC LUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter discusses the summary, conclusion, recommendations and suggestion for further studies from the study which was carried out to assess outcomes of self-directed learning and traditional didactic lecture-based methods among nursing students in Southwestern Nigeria

5.1 Summary of Findings

Self-directed learning which is the individual's ability to identify learning needs, search for knowledge by engaging several learning facilities and materials to resolve real-life problems is a valuable skill in Nursing. This is because Nursing is a lifelong learning profession and Nursing students as well as professionals should be able to acquire knowledge through self-directed learning (SDL) to remain relevant and productive in this lifelong learning profession. Self-directed learning is a skill that exists on a continuum; it can be developed over time with encouragement and support from teachers who are charged with nursing education and human resource development and determination from the individual nurse. The quasi experimental study was conducted in four (4) randomly selected nursing schools in Southwestern Nigeria to assess outcomes between Self-Directed Learning and Traditional Didactic Lecture-based Method among nursing students in Southwestern Nigeria. The schools were randomly assigned to two groups, two schools in the intervention group and control group respectively. The total population of nursing students was 202, they all consented and participated: 77 in the intervention group and 125 in the control group but only 183 completed the study to post-intervention stage and 165

analyzable, intervention group 77; control group 88. There was an attrition rate of 18.3%. The SDLRS was used to collect the baseline data and a validated structured questionnaire. An adopted and modified SDL module was utilised to coordinate SDL educational interaction as intervention of two hours three times a week in Medical-Surgical Nursing course (common situations that threaten human adaptation) with the intervention group and the control group was not exposed to self-directed learning; instead they had the same topics taught using traditional didactic lecture-based method by employed and trained research assistants who are nurse educators for eight weeks. Both groups were exposed to the same test items to assess knowledge on the selected topics at pre-intervention and post-intervention. Using a 50-point scale, knowledge was sub-divided into two, good ≥25 (50%) and poor <25 (50%). Change in attitude to learning was measured using 240-point attitudinal scale; categorized as positive ≥120 and negative <120, while the preferred learning strategy among the nursing students was measured using a 50-point scale, categorized as good ≥25 and poor <25. Data were analysed using descriptive statistics, t-test, Chi-square test and multiple linear regression at $\alpha = 0.05$.

Nursing students mean age in the intervention group was 20.88 ±3.52; control group 21.47±2.61, the majority were females 92.1% and most of them; 93.3% started nursing training after post-primary education. The student nurses had some knowledge of medical-surgical nursing at pre-intervention which could be as a result of clinical exposure. There was a statistical significant difference between knowledge of nursing students at pre and Post-intervention between groups as a result of the intervention, IG: 35.1 ± 4.8, CG: 27.9 ±4.2, p= 0.000 showing a major improvement in knowledge. The self-directed learning strategy yielded a remarkable, outstanding improvement on knowledge above the good outcome from the traditional didactic lecture-based method.

The self-directed learning readiness level of the nursing students improved greatly among the intervention group at post-intervention also their attitude to learning showed a higher mean value at post-intervention and had a positive effect on learning outcome at post-intervention. Nursing students from both intervention and control groups preferred the traditional didactic lecture methods at pre-intervention but at post-intervention all the nursing students in the intervention group signified a preference for self-directed learning.

Factors that influenced the choice of learning strategy among nursing students in Southwestern Nigeria at pre-intervention was varied and included the fact that students do not utilise the school library facilities. Majority of the nursing students (80.8%) made use of their handsets to access the internet for current educational information. Age group, sex and type of education attained before going for nursing training did not have any effect on the choice of learning strategy and the preferred learning strategy did not have any major effect on the nursing students learning outcome, but use of the library had a significant effect on choice of preferred learning strategy at post-intervention.

5.2 Recommendations

- Nurse educators should regularly evaluate their learners' independent learning preparedness and help them to discover their learning pattern.

- Nurse educators should collaborate with their student nurses as mature learners and to look for educational resources.

- Nurse instructors should embrace dynamic modes of teaching techniques to improve students' understanding and develop a dynamic learner-centered explicit teaching and learning approach.

- Institutional support is needed, which implies that educational institutions should provide the infrastructure to facilitate independent learning in nursing schools, make them available to students, and provide adequate information on how to reach the facilities for learners.

- The Nursing and Midwifery Council of Nigeria should ensure the complete adoption of student centered active teaching as an alternative teaching / learning method in nursing schools.

5.3 Conclusion

It is not conclusive to report self-directed teaching/learning strategy as a better teaching method for nurses because despite the fact that a substantial statistical variance existed between the outcomes of the intervention and control groups at post-intervention, that is; the self-directed learning strategy yielded an outstanding significant improvement on outcomes above the good outcomes from the traditional didactic lecture-based method, both teaching methods yielded excellent results at post-intervention.

This research work has been able to establish the fact that self-directed learning has a remarkable significant effect on outcomes of learning, which goes to say that a mixed teaching method is better than a single teaching method which is predominant in our post-secondary institutions. With these findings, it is advisable that institutions of learning should give adequate support to encourage students by providing facilities that would encourage self-directed learning in schools, as well as informing them how to access the facilities. This would ensure the development of lifelong learning professionals who can cope with the requirements of the unpredictable health care delivery system anywhere they find themselves in the world.

5.4 Implications for Further Studies

- There is need to replicate this study in a larger scale to increase generalisation of findings. This will help to see if similar findings would be revealed in other parts of Nigeria.
- The study should also be carried out using other subjects in nursing to see if independent learning could be adapted for other parts of nursing.

5.5 Implication for Nursing

Self-directed learning is a valuable skill in the nursing profession. This is because Nursing is an occupation that requires continuous learning. As a result, nursing students as well as professionals need the autonomous learning abilities to continue to be relevant and productive in the fast changing health care industry. The nurse educator has the important role of preparing and supporting nursing students to become independent knowledge seekers. This would equip them with the skill ability to response to the challenges in the

health care setting as they become professional nurses and are armed with current information through continuing education.

Self-directed learning can be acquired over time with encouragement and support from teachers who are charged with nursing education and human resource development with determination from the individual. Research results indicate that some people can resolve all obstacles to pursuing their self-directed learning others need support in accepting responsibility and improving lifelong self-directed learning skills and behaviors (Gugliamino, 2008), but in order to function efficiently in a rapidly changing world, individuals need to engage in continuous learning as most institutions of learning may not be able to meet the demand of the professionals to remain current and valuable in the fast changing health care industry.

Ensuring that self-directed learning is fully embraced by all schools of nursing training would help make the nursing students regulate their cognitive learning strategies and become equipped with the skills that are necessary to make them scientific, critical nurses, resourceful in all aspects of nursing and health care, and well trained with the skills that are necessary to address the demanding nature of the nursing profession.

Furthermore, self-directed learning bridges the gap between understanding school knowledge and real-world issues by considering how people learn in real life. It would also establish domain-specific knowledge and an individual's ability to transfer theoretical knowledge to new situations. This would help the nurse become resourceful in adopting valuable techniques for providing safe, evidence-based and expert nursing care in progressively varied settings for clients with diverse cultural backgrounds.

5.6 Contributions to Knowledge

The study made the following contributions to knowledge:

- The study is a pioneering study that assesses attitude of nursing students to learning in Southwestern Nigeria.
- The study discovered that with relevant education, attitude to learning can be

improved and a positive attitude to knowledge seeking has a great influence on the outcomes of learning.

- The study discovered that the student nurses readiness foe self-directed learning (mean value IG = 216.78, CG = 221.18) are better than most nursing students in other countries: Saudi: 159.6, China: 154.72, Australia: 150.55 among undergraduate nursing students.

- Also, if self-directed learning is adopted and included in teaching methods of tertiary institutions, it would develop the learners to be self-reliant in learning, thereby be well equipped as they move on in life to become relevant lifelong learners.

5.7 Limitations of the Study

The study was centered on selected nursing training institutions in the Southwestern part of Nigeria. It employed a quasi-experimental design to study only the second or third year nursing students. This implied that full control could not be exercised on the participants, but portraying nursing students in this region as having homogeneous characteristics. Therefore new research, with a broader scope and a larger sample size covering other geographical areas with the ethnic and cultural variation would lead to a generalisable result.

REFERENCES

Aaron, B. 2021. Factors influencing learning. In R. Biswas-Diener & E. Diener (Eds), *Noba textbook series: Psychology.* Champaign, IL: DEF publishers. Retrieved 23rd March, 2021 from http://noba.to/rnxyg6wp

Abdulbaki, K., Suhaimi, M, Alsaqqaf, A. and Jawad W. 2018 The Use of the Discussion Method at University: Enhancement of Teaching and Learning Khalid. *International Journal of Higher Education* Vol. 7, No. 6; 1-11. doi:10.5430/ijhe.v7n6p118 URL: https://doi.org/10.5430/ijhe.v7n6p118

Abdulbaki, K., Suhaimi, M., Alsaqqaf, A. and Jawad W. 2018**,** The Impact of Using the Lecture Method On Teaching English At University*, European Journal of Education Studies* 4 (5)103 – 110

DOI: http://dx.doi.org/10.46827/ejes.v0i0.1605

Abrahamson, 1978 in Pao-Nan Chou, 2008. Exploratory Study of the Relationship between Self-.Directed Learning and Academic Performance in a Web-Based Learning Environment *Online Journal of Distance Learning Administration, Volume XI, Number I, Spring 2008 University of West Georgia, Distance Education Center.*

Achuonye, K. A 2015. Predominant teaching strategies in schools: Implications for curriculum implementation in mathematics, science and technology. *Academic Journal* 10. 15:2096 -2103. DOI: 10.5897/ERR2015.2184

Adcock, A. 2017. *Non-traditional Social Work Students: Motivations, Challenges and Keys. to Success.* Retrieved 10th November, 2018 from Sophia, the St. Catherine University repository website: https://sophia.stkate.edu/dsw/1

Adebayo, A. O. and Otunla, A. O. 2015. Use of Information Resources by Student Nurses. *Library Philosophy and. Practice (e-journal).* Paper 1255. Retrieved June 2017 from http://digitalcommons.unl.edu/libphilprac/1255

Adeyemi T.O. and Olaleye F.O. 2010. Information Communication and Technology (ICT) for the Effective Management of Secondary Schools for Sustainable Development in Ekiti State, Nigeria. *American-Eurasian Journal of Scientific Research* 5, 2: 106-113.

Ahmady, S., Shahbazi, S. 2020. Impact of social problem-solving training on critical Thinking and decision making of nursing students. *BMC Nursing* **19,** 94 - 105 https://doi.org/10.1186/s12912-020-00487-x

Al Ali, Y and Badah A. M. 2014. Dominant Management Styles of the Classrooms by the Faculty Members in Alia University College. *Journal of Education and Practice* 5, 21: 176 -182.

Albaradie, R .S. 2018. Perception of students and teachers about didactic teaching: A cross-sectional study. *Saudi Journal of Health Science* 7:107- 115

Al Furaikh, S. S., Al Omairi, B. E. and Ganapathy T. 2017. A cross-sectional survey on nursing students' attitude towards research. *Journal of Health Specialties* 5:185-91.

Alharbi, H. A., Almutairi, A. F., Alhelih, E. M. and Alshehry, A. S. 2017. The Learning Preferences among Nursing Students in the King Saud University in Saudi Arabia: A Cross-Sectional Survey. *Nursing Research and Practice* 3090387, 1-7 https://doi.org/10.1155/2017/3090387.

Alias, M. 2005. Assessment of learning outcomes: validity and reliability of classroom tests. *World Transactions on Engineering and Technology Education 4, 3:21-27*

Alspach, J. G. 1991. The self-directed learning readiness of baccalaureate nursing students (Doctoral dissertation, University of Maryland. College Park, 1991). *Dissertation Abstracts International, 52*, 1980.

Anyaehie, U.S.B., Nwobodo, E., Oze, G., Nwagha, U. I., et al. 2011. Medical students' evaluation of physiology learning environments in two Nigerian medical schools Advances in Physiological Education 35. *2: 146-148*

Armstrong, S. J., Peterson E. R., Rayner, S. G. 2012. Understanding and defining cognitive style and learning style: a Delphi study in the context of educational psychology. *Educational Studies* 38. 4:449–455. doi: 10.1080/03055698.2011. 643110.

Arnesson, K. and Albinsson, G. 2017 Mentorship – a pedagogical method for integration of theory and practice in higher education. *Nordic Journal of Studies in Educational Policy*; 3, 3: 20-25 https://doi.org/10.1080/20020317.2017.1379346

Atta, I. S and Alghamdi A. H. 2018. The efficacy of self-directed learning versus problem-based learning for teaching and learning ophthalmology: a comparative study. *Advances in Medical Education and Practice 623-630.* https://doi.org/10.2147/AMEP.S171328

Ayyildiz, Y. and Tarhan, L . 2015. Development of the self-directed learning skills scale, *International Journal of Lifelong Education* 34. 6: 663-679. DOI:10.1080/ 02601370.2015.1091393.

Banning, M. 2005. Approaches to teaching: current opinions and related research. *Nurse Education Today* 25. 7: 502-508

Basavanthappa, B. T. 2018. *Nursing Education*, 2nd Ed. Jaypee Brothers Medical Publishers Ltd. EMCA House, 23/23B Ansari Road, Daryaganji, New Delhi, India.

Bawa , K., Ajelabi, A., and Saminu S. 2019 Adoption of Instructional Videos for Teaching and Learning Safety Precautions in Vocational Schools for Achieving Sustainable Educational Development Goals in Nigeria . *International Journal of Humanities Social Sciences and Education* (IJHSSE) 6, 11: 9-19 http://dx.doi.org/10.20431/2349-0381.0611002

Benner P., Hughes, R. G. and Sutphen, M. 2016. *Patient Safety and Quality: An Evidence-Based. Handbook for Nurses, Clinical Reasoning, Decision making, and Action: Thinking Critically and Clinically.* Agency for Healthcare Research and Quality.

Bigatel, P. M. 2016. Student Engagement Strategies for the Online Learning Environment. *Online Education*. Retrieved 19th November, 2018 from: https://www.facultyfocus.com/articles/online-education/student-engagement-how-to-help- students-succeed-in-the-online-environment/

Black, T.R. 1999. *Doing Quantitative Research in the Social Science: An Integrated Approach to Research Design, Measurement and Statistics*. London: Sage.

Blazar, D. and Kraft, M. A. 2017. Teacher and Teaching Effects on Students' Attitudes and Behaviors. *Educational. Evaluation and Policy Analysis* 39.1:146-170. doi: [10.3102/0162373716670260]

Bonney, K. M. 2015. Case Study Teaching Method Improves Student Performance and Perceptions of Learning Gains. *Journal of Microbiology and Biology Education* 16. 1: 21–28. Doi: [10.1128/jmbe.v16i1.846]

Boyer, S. L., Edmondson, D. R., Artis, A. B., and Fleming, D. 2014. Self-Directed Learning: A Tool for Lifelong Learning. *Journal of Marketing Education* 36.1: 20–32

Brockett, R. G. 1985a. The Relationship between Self-Directed Learning Readiness and Life Satisfaction among Older Rural Adults. *Adult Education Quarterly*, 35(4) 210-219.

Brockett, R. G. and Hiemstra, R. 1991. *Self-direction in adult learning: perspectives on theory, research, and practice.* New York: Routledge.

Brocket, R.G. 1987, in Merriam, S. B., Caffarella, R. S. and Baumgartner, A. 2007. *Learning in adulthood: A comprehensive guide* San Francisco: John Wiley & Sons, Inc.

Bromley, M. 2017. The process of learning: Total recall (parts 1- 10) Retrieved 7th March, 2021 from www.sec-ed.co.uk/supplements/

Cadorin, L., Bressan, V. and Palese, A. 2017. Instruments evaluating the self-directed learning Abilities among nursing students and nurses: a systematic review of psychometric properties. *BMC Medical Education* 17: 229. doi: [10.1186/s12909-017-1072-3]

Camins, A. 2015. What's the purpose of education in the 21st century, *The Answer Sheet*, Retrieved 14th October, 2016 from: www.arthurcamins.com/? 319.

Candy, P. C., 1991 *Self-Direction for Lifelong Learning*, San Francisco: Jossey-Bass p.15.

Carpenito, L. J. 2012. *Nursing diagnosis: Application to clinical practice* 14th Ed. Williams and Wilkins, J. B. Lippincott Company, Philadelphia, PA19106.

Chapman, A., 2006. Concept David Kolb, adaptation and design based on Kolb's learning styles of 1984. Retrieved February 10, 2012 from www.businessballs.com.

Chene, A. 1983. The concept of autonomy: A philosophical discussion. *Adult Education Quarterly* 38-47.

Clare, J., White, J., Edwards, H., Van Loon, A., 2002. Curriculum, clinical education, recruitment, transition and retention in nursing. *AUTC Phase One Final Report*, Flinders University, Adelaide, Australia.

Cochran, W. G. 1963. *Sampling Techniques*, 2nd Ed., New York: John Wiley and Sons, Inc.

Cosnefroy, L. and Carré, P. 2014. Self-regulated and Self-directed Learning: Why Don't Some Neighbors Communicate ? *International Journal of Self-Directed Learning, International Society for Self-Directed Learning* 11. 2: 1-12.

Conradie, P. W. 2014. Supporting Self-Directed Learning by Connectivism and Personal Learning Environments. *International Journal of Information and Education Technology 4: 3*

Craik, G L 1840. *Pursuit of. Knowledge under Difficulties: Its Pleasures and Rewards*. Harper & Brothers, New York.

Curtis, L., Robinson, S. and Netten, A. 2009. Changing patterns of male and female nurses' participation in the workforce. *Journal of Nursing. Management* 17. 7:84352. doi: 10.1111/j.1365-2834.2009.00982.x.

Dapko, R. J., 2016. Travel Education: A Phenomenological Study on Self-Directed. Learning and Personal Enrichment Through Foreign Travel Experiences. *FIU Electronic Theses and Dissertations*, 2726. https://digitalcommons.fiu.edu/etd/2726 DOI:10.25148/etd.FIDC001259

Darling-Hammond, L, Flook L., Cook-Harvey C., Barron B. & Osher D. 2020. Implications for educational practice of the science of learning and development. *Applied Developmental Science,* 24 (2) 97-140. DOI https://doi.org/10.1080/10888691.2018.1537791

Darmayanti, T. 1994. *Readiness for self-directed learning and achievement of the students of Universitas Terbuka (The Indonesian. Open Learning University).* U*npublished Master thesis.* The University of Victoria, British Columbia, Canada.

Delahaye, B. L. and Smith, H. E. 1995. The validity of learning preference assessment. *Adult Education Quarterly* 45, 159 -173

Dewey, J. 1993. *How we think: A Restatement of the relation of reflective thinking to the educative process*. Chicago: Henry Regnery.

Deyo, Z., Hynn, D., Sturpe, D., Kiser, K. 2011. Readiness for self-directed learning and academic performance in an abilities laboratory course, *American Journal of Pharmaceutical Education,* 76**,** 1.

Dixon, E. 1992. Nurse readiness and time spent in self-directed learning. *The Journal of Continuing Education in Nursing*, 22(5), 215-218.

Dorgu, T. E. 2015. Different Teaching Methods: A Panacea for Effective Curriculum Implementation in the Classroom, *International Journal of Secondary Education* 3.6:77 87

Dunn S. V., Burnett P. 1995. The development of a clinical learning environment scale, *Journal of Advanced Nursing, 22: 1166-1173*

Edmondson, A., Boyer, S., D, and Artis, 2012. "A meta-analytic review of adult learning Constructs, *Middle Tennessee State University.*

Efstratia, D. 2014. Experiential Education through Project Based Learning, *Procedia - Social and Behavioral Sciences* 152.7: 1256-1260. https://doi.org/10.1016/j.sbspro.2014.09.362Get rights and content

El-Gilany, A. H, and Abusaad, F. S. 2013. Self.-directed learning readiness and learning styles among Saudi undergraduate nursing students, *Nurse Education Today* 33:1040-1044.

Esthermsmth, 2017. Andragogy – Adult Learning Theory (Knowles). *Learning Theories*. Retrieved 17th November, 2018 from https://www.learning-theories.com/andragogy-adult- learning-theory-knowles.html.

Eyer, J. 1993. Self-directed continuing learning characteristics and perceptions of professional autonomy in senior baccalaureate nursing students (Doctoral dissertation, Northern Illinois University, 1993). *Abstract from: DIALOG File: Dissertation Abstracts Online, Dialog File* Number 35 Accession Number 1675625. Fontaine RH (1996).

Famutimi, E. O. 2015 Reflective Practice: Implication for Nurses *IOSR Journal of Nursing and Health Science 4.4: 28-33* DOI: 10.9790/1959-04432833 www.iosrjournals.org

Felder, R. M and Brent, R 2016. Teaching and Learning Stem: A practical Guide, *Journal of STEM Education* 17, 1: 15 -24

Field, L. 1989. An investigation. into the structure, validity, and reliability of Guglielmino's self-directed learning readiness scale. *Adult Education. Quarterly* 39. 3:125-139.

Finestone, P. 1984. A construct validation of the self-directed learning readiness scale with labour education participants (Doctoral dissertation, University of Toronto, 1984). *Dissertation Abstracts International*, 46, 5A.

Fisher M. J. 2009. 'Being a chameleon': labour processes of male nurses performing bodywork. *Journal of Advanced Nursing* 65, 12: 2668–2677. doi: 10.1111/j.1365-2648.2009.05120.x.

Frisby A. J. 1991. Self-directed learning readiness in medical students at The Ohio State University *(Doctoral dissertation, The Ohio State University*). Abstract from: DIALOG File: *Dissertation Abstracts Online, DIALOG File Number 35 Accession Number 11968891.*

Freedman, J. 1985. Reflections of a Teacher of Adults, *New Directions in Continuing Education* 26: 97-102

Gencel, I. E. and Saracaloğlu, A. S. 2018. The Effect of Layered Curriculum on Reflective Thinking and on Self-Directed Learning Readiness of Prospective Teachers. *International Journal of Progressive. Education* 14:1

Gisela H., Rensburg V. and Botma, Y 2015. Bridging the gap between self-directed learning of nurse educators and effective student support. *Curationis* 38. 2: http://dx.doi.org/10.4102/curationis.v38i2.1503

Goodman, B. E., Barker, M. K., and Cookie, J. E. 2018. Best practices in active and student-centered learning in physiology classes. *Advances in Physiology Education* 42.3: 417 – 423 https://doi.org/10.1152/advan.00064.2018

Graeve, 1987 in Merriam, S. B., Caffarella, R. S. and Baumgartner, A. 2007. *Learning in Adulthood: A Comprehensive Guide.* San Francisco: John Wiley & Sons, Inc.

Grow, G. O. 1994. In Defence of Staged Self-Directed Learning Model, *Adult Education Quarterly*, 44 (2) 109-114

Guglielmino, L. M. 1978. Development of the Self-Directed Learning Readiness Scale (*Doctoral Dissertation,* University of Georgia, 1977). *Dissertation Abstracts International*, 38, 6467.

Guglielmino, L. M., and Guglielmino, P. J. 1991. *Expanding your readiness for self directed learning*, Don Mills, Ontario: Organization design and development Inc.

Guglielmino, J. M. 1997. "Contributions of the self-directed learning readiness scale (SDLRS) and the learning preference assessment (LPA) to the definition and measurement of self-direction in learning" *Paper Presented at the First World Conference on Self-Directed Learning*, Montreal, *Canada*.

Guglielmino, L. M 2008. Why Self-Directed Learning? *International Journal of Self-Directed Learning* 5. 1: 15-10

Guglielmino, L.2014. Guglielmino: Self-Directed Learning for the 21st Century- What Research Says. *International Journal of Self-Directed Learning,* 1 (7): 2-21.

Guglielmino, L. and Hillard, L. 2007. Promoting reading achievement: A case study of exemplary elementary principals. *ERS Spectrum, 25* (2), 13-24.

Halakeri T. and Karnataka, D. 2018. A comparative study of democratic and autocratic education in the context of sociological perspectives, *International Journal of Advanced Education and Research* 3; (1); 29-31.

Hall, J.D. 2011. Self-directed learning characteristics of first -generation, first-year college students participating in a summer bridge program. *Doctoral dissertation*, University of South Florida.

Hallin, K. 2014. Nursing students at a university : A study about learning style preferences, *Nurse Education Today* 34: 1443-1449. http://dx.doi.org/10.1016/j.nedt.2014.04.001

Hamid, S. M. and Surabaya, N. 2019. Democratic and Autocratic Strategies: Teaching English at Nursing Class *Jurnal Pendidikan Bahasa Inggris* 8 (2) 215-227.

Hanfold G. E. 1991. Comparison of self-directed learning readiness scores among nurses in critical-care and medical-surgical areas (*Master's thesis, California State University, Fresno)* Abstract from: DIALOG File: *Masters Abstracts Online, DIALOG File Number 35, Accession Number 1273303.*

Harerimana A., Wicking K., Biedermann N. and Yates K. 2020. Integrating nursing informatics into undergraduate nursing education in Africa: A scoping review. *International Nursing Review*, 00, 1-14 https://doi.org/10.1111/inr.12618

Havens, R 2019. Using Role Play to Teach Social Emotional Skills in the Early Childhood Classroom. *Master's Theses & Capstone Projects.* 161. https://nwcommons.nwciowa.edu/education_masters/161

Hawkins, M. W. 2018. Self-directed learning as related to learning strategies, self regulation, and autonomy in an English language program: A local application with global implications. *Studies in Second Language Learning and Teaching* 8.2: 445-469 *doi: 10.14746/ssllt.2018.8.2.12*

Hiemstra, R. 1994. Self-directed learning. Retrieved October 13, 2006, from http://home.twcny.rr.com/hiemstra/sdlhdbk.html

Houle, C. O. 1961. The Inquiring. Mind. *The University of. Wisconsin Press*, Madison, Wisconsin

Houshmand, B. A, Sayf, H., Nikbakht N. A. 2005. Survey of nurse burnout in a 10 year period. *Teb va Tazkieh* 55.10:10–20.

Hoque M. E. 2016. Three Domains of Learning: Cognitive, Affective and Psychomotor. *The Journal of EFL Education and Research (JEFLER)* 2, 2: 2520-5897 www.edrc-jefler.org

Hsu, Y. C. and Shiue, Y. M. 2005. The effect of self-directed learning readiness on Achievement face-to-face and two-way distance learning instruction. *International Journal of Instructional Media*, 32 (2), 143-155.

Hur, Y. J. and Yeol, L. S. 2015. Difference in Characteristics of Self-Directed Learning Readiness in Students Participating in Learning Communities. *Advanced Science and Technology Letters* 92:135-140.

Jasper, M. 2013. Beginning reflective practice. *Nursing and health care practice series*, 2nd. Andover.

Kan'an, A., and Osman K. 2015. The relationship between self-directed learning skills and science achievement among Qatari students. *Creative Education 6*: 790-797.

Kar, S. S, Premarajan, K. C, Ramalingam A, Iswarya S, Sujiv A, Subitha L. 2014. Self-directed learning readiness among fifth semester MBBS students in a teaching institution of South India. *Educational Health* 27: 289-92.

Kendra, C., 2018. Kolb's Theory of Learning Styles; One of the Most Widely Used Learning Style Theories. Retrieved 7th June, 2018 from https://www.verywellmind.com/kolbs- learning-styles-2795155

Keogh B and O'Lynn C. 2007. Male nurses' experiences of gender barriers: Irish and American perspectives. *Nurse Education* 32. 6: 256–259. doi:10.1097/01.NNE.0000299478.64809.82.

Kharb, P., Samanta, P. P., Jindal, M. and Singh, V. 2013. The Learning Styles and the Preferred Teaching—Learning Strategies of First Year Medical Students. *Journal of Clinical & Diagnostic Research* 7.6: 1089–1092. doi: [10.7860/JCDR/2013/5809.3090].

Khiat, H. 2017. Academic performance and the practice of self-directed learning: The adult student perspective. *Journal of Further and Higher Education* 41.1:51-60 https://doi.org/10.1080/0309877X.2015.1062849

Khosravi, A., Najafi, F., Rahbar, M., Motlagh, M. and Kabir, M. 2009. Health profile indicators in IRI, Center for Health Network Development and health promotion. Tehran: *Publication of MOH, Deputy for Health*.

Kinasevych, O. 2014. Knowles (1975). Self-directed learning. A research and expository notebook; *Digital Journal.* Retrieved 28th November, 2018 from: https://kinasevych.ca/2014/01/09/knowles-1975-self-directed-learning/

Knapp T. R. 1990. Statistical power analysis for the behavioral-sciences, *Cohen, Journal of Educational and Psychological Measurement* 50. 2: 225–227.

Knapp, T.R. 2009. The reliability of measuring instruments. *2009 Knapp-Reliability document*. Retrieved August 20, 2012 from www.tomswebpage.net.

Knowles, M. S. 1975. *Self-directed learning: A guide for learners and teachers.* Prentice Hall, Englewood Cliffs, New Jersey.

Knowles, M.S. 1980. *The modern practice of adult education: from pedagogy to andragogy* 2nd Ed. New York: Cambridge Books.

Knowles, M. S. 1990. *The Adult Learner: A Neglected Species,* 4th Edition. Gulf Publishing, Houston, TX.

Kolb, D 1984. Experiential learning as the science of learning and development. *Englewood Cliffs, New Jersey: Prentice Hall.*

Koshy, K., Limb, C., Gundogan, B., Whitehurst, K. and Jafree, D. J. 2017. Reflective practice in health care and how to reflect effectively. *International Journal of Surgery. Oncology* 2. 6: 20. doi: [10.1097/IJ9.0000000000000020]

Kozier, B. and Erb, G., 2021. *Fundamentals of Nursing, concepts, process and practice.* 9th Ed. Pearson Education Inc. Upper Saddle River, NJ 07458.

Lauver, L. S.; West, M. M.; Campbell, T. B.; Herrold, J and Wood, G. C. 2009. "Toward evidence-based teaching: evaluating the effectiveness of two teaching strategies in an associate degree nursing program. *College of Nursing Faculty papers and presentations* Paper 22. http://jdc.jefferson.edu/nursfp/22 pages 1-15

Lemmetty, S. and Collin, K. 2020. Self-Directed Learning as a Practice of Workplace Learning: Interpretative Repertoires of Self-Directed Learning in ICT Work. *Vocations and Learning* 13**,** 47–70. https://doi.org/10.1007/s12186-019-09228-x

Lesch, S. 2017. Learning Outcomes Learning Achieved By The End Of A Course Or Program Knowledge – Skills – Attitudes *George Brown College* Retrieved Nov. 2017 from http://liad.gbrownc.on.ca/programs/InsAdult/currlo.htm

Lestani, E. and Widjajakusumah, D. 2009. Students' self-directed learning readiness, perception toward student-centered learning and predisposition towards student-centered behavior. *South-East Asian Journal of Medical Education*, 3 (1) 52 – 56

Lochner, L., Wieser, H., Waldboth, S. and Misch-Kelling, M. 2016. Combining traditional anatomy lectures with e-learning activities: how do students perceive their learning experience? *International Journal of Medical Education* 7: 69–74. doi: [10.5116/ijme.56b5.0369]

Lochnar, L. and Gijselaers, W. 2010, Improving lecture skills: A time-efficient 10-step pedagogical consultation method for medical teachers in healthcare professions. *Medical Teacher* 33(2):131 - 136 DOI: 10.3109/0142159X.2010.498490

Long 1987, in Hiemstra, R. 1994. Helping learners take responsibility for self-directed activities. *New Directions for Adult and Continuing Education* (pp. 81-87*).* Overcoming resistance to self-direction in adult learning, No. 64. San Francisco, CA: Jossey Bass.

Long, H. B. and Agyekum, S. K. 1984. Teacher ratings in the validation of Guglielmino's Self- Directed Learning Readiness Scale. Higher Education, 13, 709-715.

Lowry, C. M. 2006. Supporting and facilitating self-directed learning. Retrieved October 13, 2006 from http://www.ntlf.com/html/lib/bib/89dig.htm.

Ma, X., Luo, Y., Zhang, L., Wang, J., Liang, Y., Yu, H., Wu Y., Tan, J. and Cao, M. 2018. A Trial and Perceptions Assessment of APP-Based Flipped Classroom Teaching Model for Medical Students in Learning Immunology in China. *Education Science 8.*2: 45-49 doi:10.3390/educsci8020045

McEnroe-Petitte, D. 2020. Using Gaming as an Active Teaching Strategy in Nursing Education, *Teaching and Learning in Nursing* 15, 1: 61-65.

Mahajan, M. and Singh, M. K. S. 2017 Importance and Benefits of Learning Outcomes. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)* 22. 3: 65-67 DOI: 10.9790/0837-2203056567

Mahmood, N. A and Shah, S. M. 2013. A case study: the influence of adult learning principles on the learning process of OUM learners. *Proceeding of the International Conference on Social Science Research*, ICSSR 2013. 4-5 June 2013, Penang, MALAYSIA. e-ISBN 978-967-11768-1-8. Organized by WorldConferences.net.

Mahmoud, M. H. and Abdelrasol, Z. F. M. 2019. Obstacles in employing evidence-based practice by nurses in their clinical settings: a descriptive study, *Frontiers of Nursing* 6, 2: 123-133. DOI: https://doi.org/10.2478/FON-2019-0019

Majumdar, B., Roberts, J., Knechtel, R., Noesgaard, C., Campbell, K. and Tkachuk, S. 1998. Comparison of Self- and Faculty-Directed Learning of Psychomotor Skills. *Advances in Health Sciences Education: Theory and Practice,* 3(1):15-28.

Malekian, M., Ghiyasvandian, S., Cheraghi, M. A. and Hassanzadeh, A. 2016. Iranian Clinical Nurses Readiness for Self-directed Learning. *Global Journal of Health Science*, 8 (1): 157- 164.

Mang, O. O. 2013. Using ICT in teaching students with difficulties in Mathematics: A Way forward for ensuring successful, human capacity building. *Journal of Educational Media and Technology* 17.1: 50-56.

Matthews, M. 2011. Understanding achievement test*, Digest of Gifted Research,* Duke University Talent Identification Programme.

McCombs, B. 2018. Developing Responsible and Autonomous Learners: A Key to Motivating Students. *Teacher's Modules.* Retrieved 8th November, 2018 from https://www.apa.org/education/k12/learners.aspx

McCune, S. K., and L. M. Guglielmino 1991. Validity generalization of the Self-Directed Learning Readiness Scale. In H. B. Long & Associates, Self-directed learning: *Consensus and conflict* pp. 147-154.

McCune, S. K., Guglielmino, L. M., and Garcia, G. 1990. Adult self- direction in learning: A preliminary meta-analytic investigation of research using the Self-Directed Learning Readiness Scale. In H. B. Long & Associates, *Advances in self-directed learning research.* Norman, OK: Oklahoma Research Center for Continuing Professional and Higher Education.

McLaughlin, K., Muldoon, O. T. and Moutray, M. 2010. Gender, gender roles and completion of nursing education: a longitudinal study. *Nurse Education Today* 30.4:303–307. doi: 10.1016/j.nedt.2009.08.005.

McLeod, S. A. 2013. Kolb-learning styles. Retrieved 20th, December, 2015 from www.simplypsychology.org/learning-kolb.html

Meadus, R. J. and Twomey J. C. 2007. Men in nursing: making the right choice. *Canadian Nurse* 103. 2:13–16.

Meadus R. J. and Twomey J. C. 2011. Men student nurses: the nursing education experience. *Nursing Forum* 46. 4:269–279.

Meguid, E. A. and Collins, M. 2017. Students' perceptions of lecturing approaches: traditional versus interactive teaching. *Advances in Medical Education and Practice* 8: 229–241. doi: 10.2147/AMEP.S131851

Mei-hui, H. 2008. Factors influencing self-directed learning readiness amongst Taiwanese nursing students. PhD thesis, Queensland University of Technology.

Merriam, S. B. Caffarella, R; Baumgartner, L. 2007. *Learning in adulthood: A Comprehensive guide* 3rd Ed. San Francisco: Jossey-Bass.

Metto, E. and Makewa L. N. 2014 Learner-Centered Teaching: Can It Work in Kenyan Public Primary Schools? *American Journal of Educational Research* 2.11A: 23-29. http://pubs.sciepub.com/education/2/*1*1A/4

Minniti, L. F. S, Melo J. S. M, Oliveira, R. D. & Salles, J. A. A. 2017. The use of case studies as a teaching method in Brazil, *Procedia - Social and Behavioral Sciences* 237, 2: 373 – 377 doi: 10.1016/j.sbspro.2017.02.024

Miraglia, R. and Asselin, M. 2015. Reflection as an Educational Strategy in Nursing Professional Development: An Integrative Review. *Journal for Nurses in Professional Development* 31. 2: 62 – 72.

Mo, John P. T.; Tang, Y. M. 2017. "Project-based learning of systems engineering V model with the support of 3D printing". *Australasian Journal of Engineering Education* 22, 1: 3–13. doi:10.1080/22054952.2017.1338229. ISSN 2205-4952.

Mocker, D. W., and Spear, G. E. 1982. "Lifelong Learning: Formal, Non-formal, Informal and Self-Directed." *Information Series* No. 241

Moen, M. 2015. Teachers' Self-Directed Informal Learning for Technology Integration in 1:1 Device High Schools. *Master's Theses, Dissertations, Graduate Research and Major Papers Overview*. 132. https://digitalcommons.ric.edu/etd/132

Moore, M. 2006. Self-directed learning and distance education. Retrieved October 13,2006 from http://cade.athabascau.ca/vol1.1/moore.html

Morris, L. S. 1995. *The relationship between self-directed learning readiness and academic performance in a nontraditional higher education program. Unpublished doctoral dissertation.* The University of Oklahoma, Norman, OK.

Mullan B. and Harrison J. 2008. Male and female nursing applicants' attitudes and expectations towards their future careers in nursing. *Journal of Research in Nursing* 13.6:527–39.

Murphy R. J., Gray S. A., Straja S. R., Bogert M. C. 2004. Students' learning preferences and teaching implications. *Journal of Dental Education* 68. 8:859–866.

Nasri, N. M. 2017. Self-directed learning through the eyes of teacher educators, *Kasetsart Journal of Social Sciences*, http://dx.doi.org/10.1016/j.kjss.2017.08.006

Nitko, A. 2001. *Education assessment of students* 3rd Ed. Upper Saddle River, NJ: Prentice-Hall, Inc.

Noel, M. D., Daniels, F. M. and Martins, P. 2015. The Future of Lecture Method as a Teaching Strategy in Community Nursing. *Education Journal of Family Medicine and Community Health 2.8: 1067*.

Nokdee, S. 2007. Self-directed learning among Thai nurses in clinical practice. A Dissertation for Ed. D, unpublished School of Education Faculty of Art, Education and Human development Victoria University

Nursing and Midwifery Council of Nigeria (N&MCN). 2016. *Curriculum for General Nursing, Nigeria.*

Oddi, L. F. 1986. Development and Validation of an Instrument to Identify Self- Directed Continuing Learners. *Adult Education Quarterly*, 36(2), 97-107.

Okanlawon, F. A. 2010. Gendermix in nursing: Implication for training and practice. *African Journal of Nursing and Health Issues* 1.1:19-25

Okon, C. E., and Archibong, U. I., 2015. School Type and Students' Academic Performance in Social Studies in Junior Secondary Certificate Examination (JSCE) *Academic Journal of Interdisciplinary Studies* MCSER Publishing, Rome-Italy; 4: 2

O'Lynn C.E. 2004. Gender-based barriers for male students in nursing education programmes: prevalence and perceived importance. *Journal Nursing Education* 43. 5:229–236.

Örs, M. 2018. The Self-Directed Learning Readiness Level of the Undergraduate Students of Midwife and Nurse in Terms of Sustainability in Nursing and Midwifery Education. *Sustainability* 10: 3574.

Pale, J. W. 2016. Teacher and Student Based Instructions on Probability Achievement Outcomes and Attitudes of Secondary School Students in Bungoma North, Kenya *Journal of Education and Practice* 7.24: 43-53

Palis A. G. and Quiros P. A. 2014. Adult learning principles and presentation pearls. *Middle East African Journal of Ophthalmology* [serial online] [cited 2019 Nov 13; 21:114 122. Available from: http://www.meajo.org/text.asp?2014/21/2/114/129748

Peine, K. and Spreckelsen, 2016. Self-Directed Learning can Outperform Direct Instruction in the Course of a Modern German Medical Curriculum – results of a mixed method trial. *BioMed Central Medical Education* 16:158. DOI:10.1186/s 12909 -016-0679-0

Petro, L. 2017. How to Put Self-Directed Learning to Work in Your Classroom. *Inquiry Based Learning.* Retrieved 28th November, 2018 from: http// www.edutopia.org/discussion/how-put-self-directed-learning-work-your-classroom.

Phillips B. N., Turnbull, B. J., and He, F. X., 2015. Assessing readiness for self-directed learning within a non-traditional nursing cohort. *Nurse Education Today*; 35(3) 1 – 7.

Pilling-Cormick, J., and Garrison, D. R. 2007. Self-directed and self-regulated learning: Conceptual links. *Canadian Journal of University Continuing Education 33:* 13-33.

Pinantoan, A 2014. Introduction to Teaching Strategies. Retrieved 7th November, 2018 from https://www.opencolleges.edu.au/informed/teacher-resources/teaching-strategies/

Poathen1, L., Vadakkedom, S. S. and Geeta D M. 2017. Utility of self-learning packages in medical teaching: experience from a teaching hospital in South India. *International Journal of Advances in Medicine 4.6:1613-1615* DOI: http://dx.doi.org/10.18203/2349-3933.ijam20175176

Pollock, P. H., Harmann, K. and Wilson, B. M. 2011. Learning through Discussions: Comparing the Benefits of Small-Group and Large-Class Settings. *Journal of Political Science Education* 7.1: 48-64 https://doi.org/10.1080/15512169.2011.539913

Premkumar, K., Vinod, E., Sathishkumar, S., Pulimood, A. B., Umaefulam, V., Samuel, P. P., and John, T. A. 2018. Self-directed learning readiness of Indian medical students: a mixed method study. *BMC Medical Education* 18:134 https://doi.org/10.1186/s12909-018-1244-9

Qalehsari, M. Q., Khaghanizadeh, M. and Ebadi, A. 2017. Lifelong learning strategies in nursing: A systematic review. *Electronic Physician* 9. 10: 5541-5550. doi: [10.19082/5541]

Rae, M. G, and O'Malley D. 2017. Student attitudes towards semi-flipped classroom teaching in a pre-clinical graduate entry to medicine Physiology module. *Research in Medical Education 1: 19* DOI: https://doi.org/10.15694/mep.2017.000009

Ramnarayan, K and Hande, S. 2008. Thoughts on Self-Directed Learning in Medical Schools: Making Students More Responsible, *Online Journal of Distance Learning Administration, X1;(I): University of West Georgia, Distance Education Center.*

Rana, S., Ardichvili, A., and Poesello, D. 2016. Promoting self-directed learning in a learning organization: tools and practices. *European Journal of Training and Development 40:* 470-489.

Regional info, 2015. Southwestern Region of Nigeria and the States that fall within. Retrieved August 10, 2015 from: http://www.mydestination.com/nigeria/regionalinfo/6182976/south-west-region

Regan, J. A. 2003. Motivating students towards self-directed learning, *Nurse Education Today*, 23(8):593-599.

Reid-Brown, C. A. L. 2017. Project-Based Learning: Investigating Self-Directed Learning Readiness Skills and Content Knowledge Retention in an Urban Jamaican High School Eighth Grade Integrated Science Cohort. *FIU Electronic Theses and Dissertations*. 3388. http://digitalcommons.fiu.edu/etd/3388.

Russell, J. W. 1988. Learner preference for structure, self-directed learning readiness and instructional methods *(Doctoral dissertation, University of Missouri, 1988). Dissertation Abstracts International,* 49, 1689.

Saeid, N and Eslaminejad1, T 2017. Relationship between Student's Self-Directed-Learning Readiness and Academic Self-Efficacy and Achievement Motivation in Students *International Education Studies* 10.1:225 http://dx.doi.org/10.5539/ies.v10n1p225

Sahoo, S. 2016. Finding self-directed learning readiness and fostering self-directed learning through weekly assessment of self-directed learning topics during undergraduate clinical training in ophthalmology. *International Journal of Applied Basic Medical Research* 6.3: 166–169. doi: [10.4103/2229-516X.186959]

Said, A. B., Ghani, N., Khan, A., and Kiramat, M., 2015. Examination of Self-directed learning readiness among baccalaureate nursing students in Peshawar Pakistan, *International Journal of Innovative Research and Development*, 4 (2) 257 – 262.

Sajadi, M., Fayazi, N., Fournier, A. and Abedi, A. R. 2017. The impact of learning contract on self-directed learning and satisfaction in nursing students in a clinical setting. *Medical Journal of Islamic Republic of Iran* 31: 72. https://doi.org/10.1419 6/mjiri.31.72

Sajeevan, K. C. and Jose J. 2018. Level of Knowledge gained by self-directed learning and interactive lectures for teaching biochemistry among first year medical students in government medical college, Idukki, Kerala- a comparative study. *Journal of Evidenced Based Medical Health Care* 5.16: 1395 – 1398. DOI: 10.18410/jebmh/ 2018/290.

Salmond, S. W and Echevarria, M 2017. Healthcare Transformation and Changing Roles for Nurses. *Orthopedic Nursing* 36. 1: 12–25. doi: [10.1097/NOR.0000000000000308]

Sarmasoğlu, Ş. 2009. In Senyuva , E., and Kaya, H., 2014. Effect self directed learning readiness of nursing students of the web based learning. *Procedia - Social and Behavioral Sciences* 152: 386 – 392.

Sawatsky, A. P., Ratelle, J. T., Bonnes, S. L., Egginton, J. S. and Beckman, T. J. 2017. A model of self-directed learning in internal medicine residency: a qualitative study using grounded theory. *BioMed Central Medical Education* 17:13. doi: [10.1186/s12909-017-0869-4]

Scheuermann, J. A. 2018. Group vs. Collaborative Learning: Knowing the Difference Makes a Difference. *Course Design Retrieved 19th November, 2018 from:* https://www.facultyfocus.com/articles/course-design-ideas/group-vs-collaborative-learning-knowing-difference-makes-difference/

Scott, M. 2017. Preparing today's students for tomorrow's world, *Education for a Changing World*. Delivered on 29 June 2017 to the Trans Tasman Business Circle. NSW Department of Education.

Senyuva , E. and Kaya, H., 2014. Effect self- directed learning readiness of nursing students of the web based learning. *Procedia - Social and Behavioral Sciences* 152: 386 – 392.

Serdyukov, P. 2017. Innovation in education: what works, what doesn't, and what to do about it? *Journal of Research in Innovative Teaching & Learning* 10.1: 4-33 https://doi.org/10.1108/JRIT-10-2016-0007

Shaikh, R. B. 2013. Comparison of Readiness for Self-Directed Learning in Students Experiencing Two Different Curricula in One Medical School. *Gulf Medical Journal, 2,* 27-31.

Sharan, B. M. 2017. Adult Learning Theory: Evolution and Future Directions. *Journal of Lifelong Learning* 26:21-37.

Shirazi, F., Sharif, F., Molazem, Z. and Alborzi, M . 2017. Dynamics of self-directed learning in M.Sc. Nursing students: A qualitative research. *Journal of Advances in Medical Education and Professionalism* 5.1: 33-41.

Shoukat, A. 2019. "Learning clinical skills through audiovisual aids embedded in electronic-PBL sessions in undergraduate medical curriculum: perception and performance". *Advanced Physiology Education* 43, 3: 378–382. doi:10.1152/advan.00075.2019. PMID 31361148.

Shreeve, M. W. 2008. Beyond the Didactic Classroom: Educational Models to Encourage Active Student Involvement in Learning. The Journal of Chiropratic Education; 22, 1: 23-28

Simelane, B. S., Kunene, P. J. and Mhlongo, C. S. 1997. Attitudes of nursing students towards the seminar method of teaching. *Curationis* 20.1: 11-14.

Sinaga, D. 2018. Effect of Learning Strategies and Independence of Student Learning Outcomes Learning Science Skin Disease and Sex. *European Journal of Health and Biology Education* 7.1: 1-9 https://doi.org/10.29333/ejhbe/87032

Song, D. and Bonk, C. J. 2016. Motivational factors in self-directed informal learning from online learning resources. *Journal of Cogent Education* 3. 1:

Soliman, M and Al-Sheikh, G (2015. Readiness for Self-Directed learning among first year Saudi Medical students: A descriptive study . *Parkistan Journal of Medical Sciences,* 31.4: 799–802. doi: 10.12669/pjms.314.7057

Soper, T. 2017. Knowledge into learning: comparing lecture, e- learning and self study take home packet instructional methodologies with nurses. *Nursing Open* 4:76–83 https://doi.org/10.1002/nop

Spear and Mockers, 1984 in Hiemstra, R. 1994. Self-directed learning. Retrieved Oct. 13, 2006, from http://home.twcny.rr.com/hiemstra/sdlhdbk.html

Steven, J. 2016. Reflective learning, reflective practice. *Nursing* 46. 5: 62-64 doi: 10.1097/01.NURSE.0000482278.79660.f2

Stan, M. M. 2015. The relationship of learning styles, learning behaviour and learning outcomes at the Romanian students. *Procedia - Social and Behavioral Sciences* 180:1667 – 1672. doi: 10.1016/j.sbspro.2015.05.062

Straka, G. A., and Hinz, I. M. 1996. Problems of measuring readiness for self-directed learning. *Paper presented at the 10th International Symposium on Self-Directed Learning,* West Palm Beach, FL.

Tang, F.; Chen, C.; Zhu, Y.; Zuo, C.; Zhong, Y.; Wang, N.; Zhou, L.; Zou, Y.; Liang, D. 2017. Comparison between flipped classroom and lecture-based classroom in ophthalmology clerkship. *Medical Education Online* 22: 1395679.

TEAL Fact sheet, 2018, Adult learning theories. Retrieved 8th November, 2018 from https://lincs.ed.gov/state-resources/federal-initiatives/teal/guide/adultlearning

Terada, Y. (2018). *Boosting Student Engagement through Project-Based Learning*. Retrieved March 18, 2021 from https://www.edutopia.org/article/boosting-student-engagement- through-project-based-learning.

Teyssier, Y. 2016. Five Advantages of Using Games For Learning. *E-learning Authoring Tools*. Retrieved 19th November, 2018 from: https://elearningindustry.com/5-advantages-games-for-learning.

Thornton, K. 2010, Supporting Self-Directed Learning:A Framework for Teachers *Language Education in Asia*, 1, 1:, 158-170. doi.org/10.5746/LEiA/10/V1/A14/Thornton

Toit-Brits C. and Zyl C. 2017 Self-directed learning characteristics: making learning personal, empowering and successful. *Journal of African Education Review* 14.3-4: 122-141 https://doi.org/10.1080/18146627.2016.1267576

Topham, P. 2015. Older adult students in their first year at university: Challenges, resources and support. Project Report. University of the West of England. Retrieved 10th November, 2018 from: http://eprints.uwe.ac.uk/25888

Tough, A. 1979. The adult's learning projects: A fresh approach to theory and practice in adult learning. Toronto, *Ontario Institute for Studies in Education.*

Ültanır E., Ültanır Y. G., Temel G. Ö. 2012. The examination of university students' learning styles by means of felder-silverman index. *Education and Science* 37.163:29–42.

University of Texas, 2018 *Instructional Assessment Resource*: Retrieved 4th December 2018 From: http://www.utexas.edu/academic/ctl/assessment/iar/students/plan/steps/

University of Waterloo, 2018. *Self directed learning: learning contracts*. *Centre for Teaching Excellence*. Retrieved 19th November, 2018 from https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/tips-students/self-directed-learning/self-directed-learning-learning-contracts.

Van Rensburg, G. H. and Botma, Y. 2015. Bridging the gap between self-directed learning of nurse educators and effective student support. *Curationis* 38. 2:1503 doi: [10.4102/curationis.v38i2.1503]

Walther, J. H. 2018. Developing Personal Course Plans (PCPs) as an Example of Self-Directed Learning in Library Management and Project Management *Education Journal of Library Administration* 58.1: 91-100 https://doi.org/10.1080/01930826.2017.1399707

Westin, L., Sundler, A. J.and Berglund, M. 2015. Students' experiences of learning in relation to didactic strategies during the first year of a nursing programme: a qualitative study. *BMC Medical Education* 15:49. doi: [10.1186/s12909-015-0338-x]

WHO, 2016. Nurse educator core competencies. *WHO Library Cataloguing-in-Publication Data*: Retrieved 14th November, 2018 from: www.who.int/hrh/nursing_midwifery/nurse_educator050416.

Wiley, K. 1981. Effects of a self-directed learning project and preference for structure on self-directed learning readiness of baccalaureate nursing students (Doctoral dissertation, Northern Illinois University. *Dissertation Abstracts International* 43: 1A.

Williamson, S. and Seewoodhary, R . 2017. Student Evaluation of the Usefulness of the Self-Rating Scale of Self-directed Learning tool in the FdSc in Health and Social Care Course. *Journal of Health Care Community* 2:48. doi: 10.4172/2472-1654.100089.

Wilson, K, 2016. Critical reading, critical thinking: Delicate scaffolding in English for Academic Purposes (EAP) *Science Direct* 22: 256-265 https://doi.org/10.1016/j.tsc.2016.10.002Get rights and content

Wong, F. M. F. 2018. A phenomenological research study: Perspectives of student learning through small group work between undergraduate nursing students and educators. *Nurse Education Today* 68:153-158. doi: 10.1016/j.nedt.2018.06.013.

Xu, J-h. 2016. Toolbox of teaching strategies in nurse education. *Chinese Nursing Research* 3. 2: 54-57. https://doi.org/10.1016/j.cnre.2016.06.002Get rights and content

Yang, G. and Jiang, X. 2014. Self-directed learning readiness and nursing competency among undergraduate nursing students in Fujian province of China. *International Journal of Nursing Sciences* 1.3:255-259. https://doi.org/10.1016/j.ijnss.2014.05.021

Yerrabati, S. 2017 How adults learn: A Reflection. *Journal of Learning and Teaching* 10.1: 1-3

Yew, E. H. J. and Goh, K. 2016. Problem-Based Learning: An Overview of its Process and Impact on Learning. *Health Professions Education* 2. 2: 75-79 https://doi.org/10.1016/j.hpe.2016.01.004Get rights and content

Yuan, H. B., Williams,B., Fang, J. B., Pang, D., 2012. Chinese baccalaureate nursing students' readiness for self-directed learning. *Nurse Education Today*, 32, pp. 427–431

Zanjani, N. K., Ajam A, Badnava, S. 2017. Determining the Relationship Between Self-directed Learning Readiness and Acceptance of E-learning and Academic Achievement of Students. *Iranian Journal of Nursing* 30. 106: 11-22.

APPENDICES

APPENDIX 1

INFORMED CONSENT FORM FOR STUDENT NURSES
Department of Nursing, College of Medicine
University of Ibadan

INFORMED CONSENT FORM FOR STUDENT NURSES

Dear Participant,

My name is Mrs Pauline O. Guobadia, a Ph.D student from the Department of Nursing, College of Medicine, University of Ibadan. I am conducting a study on **Outcomes of Self-directed Learning and Traditional Didatic Lecture-Based Method among Nursing Students in Southwestern Nigeria.**

You are being invited to participate in this research being undertaken to learn about the adoption of methods of learning that would facilitate learner independence of teachers in Nigerian schools of nursing.

The purpose of the study is to assess the outcomes of self-directed learning and traditional didactic lecture-based method among nursing in Southwestern Nigeria.

Participation in this study is voluntary; one can withdraw from the study at any time without any penalty whatsoever. This is purely an academic exercise and all information you give shall be kept confidential. There is no risk or hazard involved.

In total you are expected to be involved in this research for six (6) weeks. You should not spend more than two hour class interaction twice a week.

Your participation in the study will be highly appreciated.

CONSENT: The study has been explained to me, I fully understand the content of the study process. I will be willing to participate in the study

_____ _____

Signature of participant/Date Signature of researcher/Date

PLEASE KEEP A COPY OF THE SIGNED INFORMED CONSENT

APPENDIX 2 QUESTIONNAIRE

Outcomes of Self-Directed Learning and Traditional Didactic Lecture-Based Method among Nursing Students in Southwestern Nigeria

Learning Preference Assessment

Dear respondents,

I am Pauline GUOBADIA, a Ph.D. student from the Department of Nursing, College of Medicine, University of Ibadan. I am conducting a study on **"Outcomes of Self-Directed Learning and Traditional Didactic Lecture-Based Method among Nursing Students in Southwestern Nigeria".**

I am writing to invite you to participate in this research being undertaken as part of my PhD studies. I am moving round to learn about the adoption of methods of learning that would facilitate learners' independence of teachers in Nigerian schools of nursing and yield the best learning outcome. The purpose of the study is to assess outcomes of Self-Directed Learning and Traditional Didactic Lecture-Based Method to see which of them yields the best learning outcome for nursing training.

Participation in this study is voluntary; one can withdraw from the study at any time without any penalty whatsoever. This is purely an academic exercise and all information you give shall be kept confidential. You do not need to write your name but will be required to write the last four digits of your GSM number for ease of analysis and comparing findings. I implore you therefore to be honest while answering the questions. There is no right or wrong answer.

Thank you.

Name of school of Nursing: (Please Specify) ……...

Index Number: (Please Specify) …….....

SECTION A: DEMOGRAPHIC DATA

Instruction: Please kindly tick [.] the option most applicable.

1. Gender: (a) Male [ ] (b) Female [ ]
2. Age last birthday: (Please Specify) ……...

3. Type of secondary School attended: :
   (a) Public secondary school ☐ (b) Federal secondary school ☐
   (c) Mission secondary school ☐ (d) Private secondary school ☐
4. Educational qualification attained: (a) secondary school ☐ (b) Others, (please specify) ……
5. Year in present programme: (Please Specify) ……

SECTION B: LEARNING PREFERENCES AND ATTITUDES TOWARDS LEARNING

Instructions: Please complete the SDL Score sheet. It should take no more than 30 minutes.

After reading each item, please tick ✓ on the number of the response that best describes your feelings, beliefs, skills, or actions.

1 - Almost never true of me: I hardly ever feel this way
2 - Not often true of me: I feel this way less than half the time
3 - Sometimes true of me: I feel this way about half the time.
4 - Usually true of me: I feel this way more than half the time.
5 - Almost always true of me: There are very few times when I don't feel this way.

S/No	LEARNING PREFERENCE AND ATTITUDE TO LEARNING	1	2	3	4	5
	INDEPENDENCE					
1	In a classroom situation, I expect the instructor to tell all class members exactly what to do at all times.					
2	Even if I have a great idea, I can't seem to develop a plan for making it work.					
3	No one but me is truly responsible for what I learn.					
4	If I discover a need for information that I don't have, I know where to go to get it.					
5	I know when I need to learn more about something.					
6	I don't work very well on my own.					
7	I can learn things on my own better than most people.					
8	I am capable of learning for myself almost anything I might need to know.					
9	I am an effective learner in a classroom situation and on my own.					

10	I learn several new things on my own each year.					
	SELF MANAGEMENT					
1	I don't have any problems with basic study skills.					
2	Understanding what I read is a problem for me.					
3	I become a leader in group learning situations.					
4	Difficult study doesn't bother me if I'm interested in something.					
5	I can make myself do what I think I should.					
6	If there is something I have decided to learn, I can find time for it, no matter how busy I am.					
7	There are so many things I want to learn that I wish there were more hours in a day.					
8	If I don't learn, it's not my fault.					
9	I am responsible for my learning - no one else is.					
10	It takes me a while to get started on new projects.					
	CURIOSITY					
1	I believe that thinking about who you are, where you are, and where you are going should be a major part of every person's education.					
2	I can tell whether I'm learning something well or not.					
3	Learning how to learn is important to me.					
4	If I can understand something well enough to get by, it doesn't bother me if I still have questions about it.					
5	I have a lot of curiosity about things.					
6	I like to try new things, even if I'm not sure how they will turn out.					
7	I'm good at thinking of unusual ways to do things.					
8	I like to think about the future.					
9	I'm better than most people are at trying to find out the things I need to know.					
10	I'm happy with the way I investigate problems.					
	DESIRE FOR LEARNING					
1	I'm looking forward to learning as long as I'm living.					
2	I love to learn.					
3	I think libraries are boring places.					
4	The people I admire most are always learning new things.					

5	I'll be glad when I'm finished learning.					
6	I'm not as interested in learning as some other people seem to be.					
7	I don't like it when people who really know what they're doing point out mistakes that I am making.					
8	I have a strong desire to learn new things.					
9	The more I learn, the more exciting the world becomes.					
10	Learning is fun.					
11	I want to learn more so that I can keep growing as a person.					
12	I will never be too old to learn new things.					
13	Constant learning is a bore.					
14	Learning is a tool for life.					
15	Learning doesn't make any difference in my life.					
16	Learners are leaders.					
	PROBLEM SOLVING ABILITY					
1	I know what I want to learn.					
2	When I see something that I don't understand, I stay away from it.					
3	If there is something I want to learn, I can figure out a way to learn it.					
4	I think of problems as challenges, not stop-signs.					
5	It's better to stick with the learning methods that we know will work instead of always trying new ones.					
6	I don't like challenging learning situations.					
7	I can think of many different ways to learn about a new topic.					
8	I try to relate what I am learning to my long-term goals.					
9	I enjoy discussing ideas.					
10	I really enjoy tracking down the answer to a question.					
11	I don't like dealing with questions where there is not one right answer.					
12	In a learning experience, I prefer to take part in deciding what will be learned and how.					

SECTION C: FACTORS THAT INFLUENCE LEARNING STRATEGY AMONG NURSING STUDENTS IN SOUTHWESTERN NIGERIA.

After reading each item, please tick (√) Yes or No on the response that best describes your feelings, beliefs, skills, or actions. (Yes or No) except otherwise stated.

1. We have enough academic staff in our school. (a) Yes ( ) (b) No ( )

Staff strength in the school: (Please Specify) ……

2. Teachers spend a lot of time giving notes so that students can understand what they are teaching. (a) Yes ( ) (b) No ( )
3. There is a heavy homework load. (a) Yes ( ) (b) No ( )
   Specify how many hours per week do you spend studying on your own or doing class assignments ……
4. Our school library provides enough current educational information for us.
   (a) Yes ( ) (b) No ( )
5. We make use of the internet connections in the school and hostel.
   (a) Yes ( ) (b) No ( )
6. We have current journals in our library. (a) Yes ( ) (b) No ( )
7. We have free access to resources for information. (a) Yes ( ) (b) No ( )
8. A good memory is all I need to pass these courses. (a) Yes ( ) (b) No ( )
9. The teachers set application questions that the answers cannot be found in textbooks.
   (a) Yes ( ) (b) No ( )
10. We have gone for clinical posting (a) Yes ( ) (b) No ( )

If yes, please specify number of weeks …….

11. By your own effort, how do you access current educational information (circle **the most applicable** (only one)) a. Handset b. School library c. Daily news paper d. discussion with experts e. Cyber cafe

Thank you for your time and responses.

APPENDIX 3: TEACHING MODULE (Self-Directed Learning Approach) Adopted and modified from Kyle, (2014)

My aim as a researcher/co-learner with the students:

• Creating a collaborative learning environment

• Motivating and guiding learning experience for students

• Facilitating training activities for students

• Be prepared for meetings as needed during the learning process

• Act as a mentor or co-learner rather than as a structured teacher.

Objectives of interaction: At the end of utilizing this self-directed learning module the students should be able to:

- Acknowledge themselves as learners
- Identify their needs as self-directed learning students
- Carry out a self-assessment of readiness to learn
- Define learning goals and develop a learning plan
- Carry out a self-assessment of learning needs and monitoring of learning process
- Take initiative at all stages of the learning process – need to motivate selves
- Carry out evaluation and alter goals as required during a unit of study
- Consult with advising faculty member as required

The Researcher addresses the Nursing Students;

This manual is prepared to give you the step by step direction on how to develop your self-directed learning skills and utilize it to discover new knowledge as lifelong learners. This can also be used side by side with the Traditional Didactic Lecture-Based Method of teaching which dominates student–teacher interaction in most of our post-secondary institutions in Nigeria. This study is to find out which of these two learning methods will yield a better learning outcome.

It has been observed that it is not all that the Nursing Students need to practice as competent professionals that are taught in class during training, nurses come across a lot of different types of disease conditions in the clinical area where they carry out patient care. Most of these rare and new disease conditions which were not taught in class during the

period of training pose a challenge to the professional nurse while caring for clients with such diseases. This is why it is necessary to introduce additional ways of getting information to promote individualized learning which will lead to lifelong learning.

The resources to be used include; the internet, textbooks and journals from different sources (self owned and from the library) expert nurse leaders in addition to the teacher (myself) who will take up the role of a guide/facilitator and a co- learner with you (the students).

Basically, the principles of this strategy are that the learners make the first move in planning, executing and assessing their own learning needs and results with or without the help of others through the use of the resources mentioned above and lots more. This student-centered learning will take the form of individual reading, informal discussion, independent study, guided study, group work and computer assisted learning.

Procedure

First Meeting with the Nursing Students

Today is our first interaction, as nursing students who are interested in becoming self-directed learners in order to be useful lifelong learners and more productive through your own efforts in the health care industry, you need to first of all look at why self-direction in learning is important to you. Secondly, we need to assess what you know about self-directed learning and your readiness to be self-directed learners; this is why you were asked to fill the Learning Preference Assessment/Self-Directed Readiness Score section of your questionnaire. The interaction I will have with you will be as realistic as possible so you can use it with others for life. You will soon realize that there are many variations between the lifelong SDL themes and the main school themes. Your motives will be the focus of this collaborative relationship, not mine. There will be no focus on content or evaluating the mastery of it. The focus will instead be on taking measures that will lead to more efficient outcomes. Any evaluation we carry out will be to figure out how to improve the mechanism you are using and to improve your output both as students and professionals in a lifelong learning profession. You must have found that a number of items on the questionnaire relate to personality aspects; that is because those traits are important to becoming a productive person effectively. You will be provided with the scores in the test

portion of the LPA / SDLRS. Consider what you can do without assistance to develop the characteristics that need to be addressed. These scores will also be utilised to put you into five groups before the self-directed learning interaction will commence. There is need to know the resources available for your easy access and utilization in your school and hostel for self-directed learning and how you go about discovering useful information on your own.

Do not forget the importance of developing this learning skill. You will now be given information on the measures to build on to be able to utilise self-directed learning techniques as lifelong learners.

It is hard to learn a new skill, it takes a lot of drive and determination to succeed, especially if you are doing it alone. Your chances of failure will be very high without specifying precisely what you want to do, the method and strategy you would pursue to do that, and the underlying reason of why you want it.

In this informational guide the first move is to build your own self-directed learning program:

1. Begin with why you really want to acquire a new learning skill.

This is a very essential step that most people ignore. As a self-directed learner you do not have an authority figure that has set up a system of rewards and punishments to encourage and grade you. This means that you must be inspired to learn, which means that you are motivated by your own inner sense of independence, deep understanding and intent. Once you determine your learning intent and how accomplishing the goal will make you feel emotionally, remaining inspired for a long time becomes much simpler. Envision the end result you want to accomplish with an extra focus on how you feel knowing that you are inevitably going to achieve it.

2. Set clear objectives for what you intend to know.

It is recommended that you use the S.M.A.R.T. objective setting framework to set clear, measurable goals. Here's how it works:

Specific: the first move is to get precisely what you want to accomplish. Write a single sentence identifying exactly what you're committed to learning.

Measurable: You need to ensure that your goal can be easily evaluated. A good starting

point is to devote some time each week without interference or disturbance to achieve your target.

Achievable: You need to be realistic. If you have struggled in the past with online learning, you need to set the bar low to build the initial habit and then work your way up to more time and effort as your confidence improves.

Relevant: This is where "your why" comes in, you need to make it pertinent to your life. You want to stick to this aim because you have been thinking deeply about how it will influence your life and well-being and strengthen it.

Timely: You need to set a time frame to recognise when you've hit your target. Firstly, I suggest setting short-term learning objectives that can be accomplished in less than 30 days.

3. Structure your time and schedule your learning sessions.

This is an important step if you have to be a competent self-directed learner. Attending school will compel you to schedule your time because you need to show up for classes. When you learn on your own, you will have to develop a similar schedule by subjecting yourself to a weekly schedule. Set aside 2-3 hours at a time, preferably, and take short breaks every half hour or an hour. You also need to set reminders that you have to review your notes and store vital information later.

It also helps to set a time at the end of each week so that you can check your progress and make sure that you are on track to achieve that objective. You may need to modify your self-directed learning plan to be more realistic if you're not on course.

4. Be Focused: Get Over Multitasking Paralysis

Initially, I had a note on my phone that listed nearly a hundred topics I wanted to know about. Flicking through it was fun, but that is all it was good for. I manually skipped for a few days from subject to subject and then spent a week playing games without getting to achieve anything good. Stick to and concentrate on one topic at a time.

5. Define and Give It a Name

You have a modicum of framework now that you are not surfing the web and have chosen a topic. In a selected course you are dedicated to "teaching yourself a topic.

Good goal setting revolves around specificity: e.g I'm going to learn how to take care of a

head injury patient. It's best to give this project an imminent deadline.

You now have a standard that can evaluate your success or failure.

There's also a cognitive change that occurs when you give a name to your learning project. It makes it feel official and helps you to retain your dedication.

A lot of information resources are easily accessible; most of them are awful. The best resources are those that, "teach you how to learn" a particular subject by filtering the information,. In order to create structure, finding and investing in these frameworks is extremely helpful.

6. Assign Little Steps

You have chosen a particular topic and you have a specific goal, but every day you must break it down into smaller parts. Even these short-term, measurable goals are daunting. Write down and carry out one of two learning tasks that you have to execute for the day. Often useful for pattern forming is the analysis and breaking down of activities into small steps.

7. Latch onto Already Existing Systems

In this age, there is knowledge explosion. Developing a learning strategy is like walking through a sea of irrelevance to search for what is relevant. Even if you happen to find the appropriate resources, you may be confused about the order you should use them. Fortunately, someone else selected the resources for you and arranged them in the order the user should follow.

8. Get Help from Your Peers

Without this move, the whole process will collapse. It's not enough to be self-directed. One of the best ways to design your learning is to depend on the individuals around you while you support them in turn. It works better to have a partner to hold you up to your ambitions. It's even better if your friend is working on the same project you are actually working on. There's more accountability, more competition, and when you're stuck, you can ultimately assist each other. Another great way to find assistance is to reach out and offer free work for people you admire. They'll be happy to take advantage of your youthful energy. In the meantime, you can grasp all you can from them. This is the main way mentors can be found.

9. Find a learning accountability partner.

Making yourself accountable is the key to building a self-directed learning habit. For most of us, to be successful entails more than simply being accountable to ourselves. So that's why I suggest engaging with a close friend, colleague or family member to learn a new skill. If you don't have anyone to learn with, unite with other learners who are dedicated to learning in a popular online course or membership-based learning community.

10. Measure Your Results

What gets evaluated, is being regulated. There are no indicators to give you a clear measure of progress if you guide your own learning. It is therefore essential to keep track of your work, this is the glue that holds everything together. It not only gives you fulfillment when you move forward, it also enables you to be conscious of your challenges. Luckily, when you implement a structured learning system, it should not be too difficult to evaluate the performance.

You will have perfectly crafted objectives that you can either reach or fail to achieve when you decide to try the previous steps. That's a good thing. You will also define everyday learning objectives that can be crossed out. You'll check at the end of the week if you've achieved these targets individually as well as with your reliable friend. Tracking the time spent learning and calibrating appropriately may be beneficial.

11. Apply what you learn in a new situation

You need to incorporate what you know in a new situation if you want to learn a new skill. This will help you to demonstrate the new ideas and skills that you have just acquired and see how well you can handle the case.

In conclusion, the future belongs to the brave and curious, so if you are serious about learning something new, follow these steps and by making your goals a top priority in your life, you will be on the path to achieving your dreams. You will have a strong foundation to develop and acquire new skills in your life as you pursue these steps to create your own self-directed learning schedule.

It's difficult to learn new things. Building on a foundation will make it easier, but there will

still be tough times. As a self-directed learner, your ability to succeed depends largely on your capacity to delay gratification. Move, move, move through the opposition. It is going to be worth it (Kyle, 2014)

My contact number is 08034277770 and my e-mail address is paulineguobadia@yahoo.com you can give me a call or send me a mail whenever there is a need. Let us acquire some knowledge while having fun together. Learning they say is power.

The filled copies of self-directed learning readiness scale was taken away, scored and grouped into six using the score guide from the Gugliemino associates (2008) who are the original owner of the instrument.

Second interaction

The students are asked to pick numbers serially between one to five putting into consideration students who had a SDLRS of low, below average, average, above average and high to form groups with a good mix giving a total of five (5) groups. These groups will be maintained throughout the intervention period. She then introduced the sample topic for the day (Epilepsy). Together, the teacher and the students identified and set the objectives of learning for the day. The learning strategies were also selected and the teacher mandates each group leader to coordinate the learning activities of group members. Students are given one hour after which they converged to share and discuss all the information they have on the topic selected to be used as a guide and ideas are shared with notes taken down by the students, the teacher encouraged every student to take active part in the discussion.

This procedure of independent study is repeated in the class up to three interactive sessions to allow students to become familiar with the overall technique. Students are also encouraged to ask questions to clear any dilemma, misconceptions or confusion.

The teacher then gave individual assignments and group presentation to the students on topics selected from their curriculum for subsequent lessons/interactions.

This selected unit in medical-surgical nursing course introduces the students to common symptoms experienced by humans. During the period of training and practicing as nurses,

they are likely to encounter patients with these common symptoms in their nursing practice. The goal of this unit is to assist the nurse to understand how these conditions occur, and his/her specific roles in helping patients who are experiencing such symptoms throughout the continuum of healthcare. The six topics selected from the topics in the unit as listed below:

INTRODUCTION TO COMMON SITUATIONS IN MEDICAL-SURGICAL NURSING THAT THREATEN HUMAN ADAPTATION (UNIT III, MEDICAL-SURGICAL NURSING)

1. Headache
2. Pain (as the 5th vital sign)
3. Fever
4. Fatigue
5. Allergy
6. Unconsciousness

APPENDIX 4:

LEARNING OUTCOME TEST

INTRODUCTION TO COMMON SIGNS AND SYMPTOMS

(MEDICAL-SURGICAL NURSING)

Instructions: Choose and circle the correct option A, B, C or D.

***CANDIDATE'S NO*_____**

Time: 30minutes

OBJECTIVE QUESTIONS: ***Answer all questions***

1. Headache can be defined as

    a. an unpleasant sensation in the region of the cranial vault, area below the orbits (eyes), spreading over the scalp and back to the occipital region
    b. an unpleasant sensation in the region of the spinal cord, area below the occipital region
    c. an unpleasant sensation in the region of the cranial vault, spreading to the coccyx
    d. an unpleasant sensation in the region of the cranial vault, spreading towards the abdominal muscles

2. Headache can also be called

    a. Cephalle b. Cephalo pelvic c. Cephal dydymis d. Cephalagia

3. Headache is classified into two namely;

    a. Visible and occult headache
    b. primary headache and secondary headache
    c. malignant and secondary headache
    d. primary headache and throbbing headache

4. All of the under-listed EXCEPT one are examples of primary headache

    a. tension- type headache b. Migraine
    c. increased intracranial pressure d. cluster headaches

5. The most common type of headache is

a. Tension –type headaches
b. increased intracranial pressure
c. cluster headaches
d. throbbing headaches

6. Mrs Bayo complained of headache. According to her she just woke up from a nap and her headache became worse. She observed that the pain was around one eye and temple, her eyelid started drooping, the only action which seemed to help is walking around. With these symptoms you will suspect that Mrs Bayo is experiencing what type of headache?

a. tension- type head b. migraine c. cluster headaches d. migraine

7. Mrs Abang came to you complaining of recurring headache characterized by unilateral or bilateral throbbing pain, usually triggered by events or factors. She tells you her father used to complain of similar symptoms and the headache is relieved by lying down. With these symptoms, what type of headache will you suspect that Mrs Abang is suffering from?

a. tension- type headache
b. Migraine
c. increased intracranial pressure
d. cluster headaches

8. Which of the headaches occurs in 4 phases as prodromal phase, aura phase, headache phase and recovery phase?

a. . Migraine
b tension- type headache
c. increased intracranial pressure
d. cluster headaches

9. Your classmate Bisi who is preparing for examination and working on permanent night shift in an emergency unit of the teaching hospital to enable her fund her education came to you complaining of headache with a feeling of pressing and tightening in the head and contraction of the muscles in the neck and scalp which is made worse with activity. She's had more than fifteen (15) headache-days that month. What type of headache is Bisi experiencing?

a. Transient. Tension- Type.headache
b. Visible. Tension- Type. headache
c. Chronic. Tension- Type. headache
d. Acute. Tension- Type. headache

10. During. the transduction. phase of nociception, which. Method. of pain. control is. most effective?

a. Tricyclic.antidepressants. b. Opiods c. Ibuprophen d. Distraction

11. When a. client has arrived.to the nursing unit from surgery, the nurse. is most likely to give priority to which of the following assessment?

a. Vital signs b. Pain intensity c. Location of pain d. Pain history

12. A client who describes pain as 6 on a scale 1 to 10 is classified. as having which of the following?

a. Mild pain
b. Mild to moderate pain
c. Moderate.to severe pain
d. Very severe pain

13. Which statement best reflects the nurse's assessment of the. fifth vital sign?

a. Are you having any complaints?
b. Do you have any discomfort right now?
c. Is there anything I can do for you now?
d. Do you have any complaints of pain?

12. The patient is to have 2.5 mg to 5.0 mg morphine intramuscular (I.M) to relieve pain every 4 hours. He was given a dosage of 2.5 mg 4 hours ago for pain scored at 3 on a pain scale of 0 to 10. He is now watching TV and interacting with members of his family. He rates it at 5 when next you ask about his pain. His vital signs are okay. What is the most effective action you will take as a nurse?

a. Offer morphine 3.5 mg I.M and tell him to keep watching TV because it's a diversion from pain
b. Give morphine 2.5 mg I.M to prevent the patient from being addicted
c. Don't offer anything at this time because there's no evidence of discomfort
d. Give 5.0 mg I.M morphine and reexamine in 20 minutes

15. Any medication or form of treatment that produces an effect in the client because of its intent rather than its chemical or physical properties is known as

a. Placebo b. Placenta c. Placard d. Platinum

16. Mr Stone has been coming to the Medical Out –Patient Department of the hospital where you work with complaints of pain on the left knee for the past 8months, despite all medications, the pain refused to go. What type of pain is Mr Stone experiencing?

a. Chronic pain b. acute pain c. sub-acute pain d. noxious pain

17. Pain which is caused by stimulation of peripheral nerve fibres and responds only to stimuli approaching or exceeding harmful intensity is known as

a. Noxious pain b. Nociceptive c. myralgia d. motor nerve pain

18. Pain which is caused by damage or disease affecting any part of the nervous system involved in bodily feelings is called

a. Myralgia b. Nociceptive c. Neuropathic d. Motor nerve pain

19. Captain Gad who led his troops to the just concluded Iraq war had a traumatic amputation of his left arm by a bomb during the heat of the war, for some hours he continued fighting as he did not feel any pain. Captain Gad was experiencing episodic analgesia known as:

a. Phantom pain b. Pain syncope

c. Pain asymbolia d. Pain fag

20. Fatigue can be defined as

a. A feeling of tiredness or exhaustion because of lack of energy or strength.
b. A period of sleepiness experienced by a person
c. A feeling of weakness
d. A feeling of inability to sleep

21. Fatigue may result from the underlisted except

a. excess work
b. lack of excercise
c. psychological disturbance
d. excess intake of vitamins

22 The four processes involved in fatigue are: Cellular impairment, systemic disorganization, discomfort and

a. psychological disturbance
b. decrease in activity
c. bulaemia
d. weakness

23 One of the underlisted is a type of fatigue

a. cyncope b. abnormal fatigue c. normal fatigue d. excess fatigue

24 Miss Mimi came to you complaining of not being able to cope effectively using the usual mechanisms since she started combining school with her new job. This patient is suffering from:

a. situational fatigue
b. normal fatigue
c. excess fatigue
d. psychological fatigue

25. To manage the patient described in number twenty four above, the most significant role of the nurse is to:

a. assist the patient to identify a problem-solving approach so that she may be able to cope with and resolve the crises
b. give sedatives so the patient can rest the brain
c. advise the patient to drop one of the programmes she is running
d. refer patient to a psychiatrist

26 Miss Titi came to you complaining of persistent feeling of tiredness, mental and physical weariness and inability to complete tasks at normal performance in the past three months.

What would you suspect that Miss Titi is suffering from?

a. Performance fatigue
b. Chronic fatigue
c. Normal tiredness
d. Malaria

27. A substance in the body that causes dilatation of capillaries and constriction of the bronchial smooth muscle is

a. immunoglobulin b. lymphokines c. histamine d. serotonin

28. The patient with allergic disorder has an exaggerated response to which of the immunoglobulins?

a. IgE b. IgD c. IgA d. IgM

29. Which of the following is not a complete protein antigen?

a. animal dander b. medication c. pollen d. horse serum

30. The most severe form of hypersensitivity reaction is

a. immune complex b. anaphylactic c. delayed-type d. cytotoxic

31. The immediate expected outcome in the management of a patient with allergic response is

a. patient demonstrates absence of complication
b. patient demonstrates knowledge about allergy and control strategies
c. patient exhibits normal breathing pattern
d. patient identifies when to seek immediate medical attention for severe allergic responses

32. Indications for immunotherapy DOES NOT include ONE of the following

a. allergic rhinitis b. conjunctivitis c. allergic asthma d. anaphylaxis

33. Allergic rhinitis includes all of these EXCEPT

a. hay fever b. seasonal allergic rhinitis
c. hives d. perennial allergic rhinitis

34. Diagnostic evaluation of the patient with allergic disorders includes

a. urinalysis b. skin tests c. packed cell volume d. hormonal assay

35. Allergic conjunctivitis is a _____ of allergic response

a. type IV b. type III c. type II d. type I

36. Radioallergosorbent Test (RAST) is a one that

a. measures allergen-specific IgE in a patient's serum

b. identifies clinically significant allergens in a patient with allergic response

c. uses different allergens suspected to be the cause of allergy in patient based on history

d. counts eosinophils from blood sample in evaluating allergy in a patient

37. The temperature of a patient using an oral digital thermometer at 8:00 am is 36.10C, if the respiration, pulse and blood pressure are within normal range, what would you do as a nurse?

a. Wait for 15 minutes and check it again.

b. Confirm what the client's temperature was the last time

c. Use another thermometer to recheck it.

d. Document the temperature, it is normal

38. A body temperature above the usual range is called fever in a lay man's term and medically known as

a. hypothermia b. pyrexia c. chills d. afebrile

39. Mr. Muniru was brought to the staff Clinic where you work with a temperature of 41.2^0C, as the nurse on duty, what would be your first action?

a. Remove all clothing from the patient to aid heat loss by convention

b. Apply ice-pack on patient's tummy

c. Inform patient about the high temperature and discuss necessary actions to lower it

d. Give patient a cold drink

40. The four common types of fever are: intermittent, remittent, constant and …… fever

a. relapsing b. febrile c. reoccurring d.hyperthermia

41. The instrument used in measuring body temperature is called

a. sphygmomanometer b. manometer c. thermometer d. barometer

42. One of the clinical manifestations of fever is

hypothermia b. incontinence c. hypotension d. shivering

43. When intravenous fluid is administered to a patient with altered level of consciousness without proper monitoring, it can cause

a. Lowered intracranial pressure b. Raised intracranial pressure

c. High blood pressure d. Low blood pressure

44. All of the underlisted EXCEPT ONE can be a cause of altered level of consciousness

a. Neurologic b. Physiologic c. Toxicologic d. Metabolic

45. Glasgow coma scale uses the following criteria to measure the level of consciousness EXCEPT

a. Swallowing response b. Eye response

c. Verbal response d. Motor response

46. Which of the following is the first line of management of a patient with altered level of Consciousness?

a. Providing warmth b. Nutritional support

c. Focusing on cause of unconsciousness d. Maintaining a patient airway

47. A state of unarousable responsiveness, where the client is unaware of the self or the surroundings and no purposeful response can be obtained to any stimuli is known as

a. Brain fag b. Fatigue c. Unconsciousness d. unarguable

48. Mr Gold was involved in a road traffic accident and has since two months ago been in a state of unresponsiveness, physically his eyes are opened and it appears he is looking at whoever is communicating with him, but he makes no movement and does not communicate in any way. What level of unconsciousness is Mr Gold?

a. Akinetic mutism b. kinetic mutism c. out of coma d. conscious state

49. One of the underlisted is NOT a cause of unconsciousness

a. Brain tumor b. bulaemia

c. drug over dosage d. alcohol intoxication

50. On the Glasgow Coma Scale, when a patient is well orientated to time and place he or she is given a score of

a. 2 b. 4 c. 6 d. 5

APPENDIX 5:

Pictures of Nursing Students as Participants at Pre-Intervention, Intervention and Post-Intervention Phases of the Study; Intervention and Control Groups

Intervention Group; School One: First Visit of Researcher to School of Nursing, Sacred Heart Hospital, Lantoro, Abeokuta. Participants Filling the Questionnaire.

Intervention Group; School One: School of Nursing, Sacred Heart Hospital, Lantoro, Abeokuta. Participants Writing the Pre-Test.

Intervention Group; School One: School of Nursing, Sacred Heart Hospital, Lantoro, Abeokuta. Participants at Interactive Sessions.

Intervention Group; School One: School of Nursing, Sacred Heart Hospital, Lantoro, Abeokuta. Participants writing the Post-test.

Last Day with Intervention Group; School one: School of Nursing, Sacred Heart Hospital, Lantoro, Abeokuta. Principal and Students of the School Appreciating the Researcher

Intervention Group School Two: First Visit of the Researcher to Department of Nursing, University of Ibadan, Ibadan. Nursing Students before the Pre-test

Intervention Group School Two: Department of Nursing, University of Ibadan, Ibadan. Nursing Students during Interactive Session

Intervention Group School Two: Department of Nursing, University of Ibadan, Ibadan. Nursing Students Writing the Post Test.

Control Group; School One: School of Nursing, Ijebu-Ode Pre-Test Day

Control Group; School One: School of Nursing, Ijebu-Ode Post-Test Day

INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)

COLLEGE OF MEDICINE, UNIVERSITY OF IBADAN. IBADAN, NIGERIA.

Director: **Prof. A. Ogunniyi,** B.Sc(Hons), MBChB, FMCP, FWACP, FRCP (Edin), FRCP (Lond)

Tel: **08023038583, 08038094173**

E-mail: **aogunniyi@comui.edu.ng**

UI/UCH EC Registration Number: **NHREC/05/01/2008a**

NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW

Re: Effects of Self-Directed Learning Strategies on Learning Outcome of Nursing Students in Medical-Surgical Nursing in South Western Nigeria

UI/UCH Ethics Committee assigned number: UI/EC/14/0353

Name of Principal Investigator: **Guobadia, Pauline O.**

Address of Principal Investigator: Department of Nursing,
College of Medicine,
University of Ibadan, Ibadan

Date of receipt of valid application: 24/10/2014

Date of meeting when final determination on ethical approval was made: **05/03/2015**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and *given full approval by the UI/UCH Ethics Committee.*

This approval dates from **05/03/2015 to 04/03/2016.** If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the* UI/UCH EC *assigned number and duration of* UI/UCH EC *approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC early in order to obtain renewal of your approval to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. *No changes are permitted in the research without prior approval by the* UI/UCH EC *except in circumstances outlined in the Code. The* UI/UCH EC *reserves the right to conduct compliance visit to your research site without previous notification.*

UI/UCH EC
05 MAR 2015
APPROVED

Dr. O. M. Bolaji
Ag. Director, IAMRAT
Chairman, UI/UCH Ethics Committee
E-mail: uiuchirc@yahoo.com

Pauline O. Guobadia
Department of Nursing,
Faculty of Clinical Sciences,
College of Medicine,
University of Ibadan
3rd, June, 2015

Director Student Affairs,
Obafemi Awolowo University,
Ile Ife
Osun State

Through: The Head,
Department of Nursing Sciences,
Faculty of Basic Medical Sciences,
Obafemi Awolowo University,
Ile Ife
Osun State

03/06/2015
Recommended for Approval

PERMISSION TO USE YOUR STUDENTS AS PARTICIPANTS IN MY RESEARCH

I am Pauline GUOBADIA, a Ph.D student from the Department of Nursing, College of Medicine, University of Ibadan. I am conducting a study on **Effects of Self-directed Learning Strategies on Learning Outcome of Nursing Students in Medical- Surgical Nursing in South- Western Nigeria.**

I am writing to take permission for your students to participate in this research being undertaken as part of my PhD studies. I am moving round institutions to learn about the adoption of methods of learning that would facilitate learners' independence of teachers in Nigerian schools of nursing.

The purpose of the study is to assess the degree of readiness for self-directed learning of nursing students' using the self-directed learning strategies readiness scale as well as to find out the relationship between the readiness of the student nurses and effectiveness of using self-directed learning strategies in teaching them.

Methodology

The second or third year nursing students in the intervention group will be exposed to six weeks self directed learning/interaction with a facilitator on selected topics in Medical Surgical Nursing course after a pre-test on the subject to be taught is administered to both the intervention and control groups to establish a base-line parameter for comparison. The control group will be taught the same topics using the traditional didactic lectures. Post intervention data will be collected immediately after the intervention and end of the sixth week. The questionnaire will be in English.

Your school is one of the six schools participating in the study and it falls under the control group.

I would be grateful if my application is favourably considered.

Thank you,

Yours faithfully,

P. O. Guobadia (Mrs)

Approved
05/06/15
DEAN, STUDENT AFFAIRS
Obafemi Awolowo University
Ile-Ife

Pauline O. Guobadia,
Department of Nursing,
University of Ibadan,
Ibadan.
3rd June, 2014

The Principal,
School of Nursing,
Sacred Heart Hospital,
Abeokuta
Ogun State.

Dear Sir/Madam,

PERMISSION TO USE YOUR STUDENTS AS PARTICIPANTS IN MY RESEARCH

I am Pauline GUOBADIA, a Ph.D student from the Department of Nursing, College of Medicine, University of Ibadan. I am conducting a study on **Effects of Self-directed Learning Strategies on Learning Outcome of Nursing Students in Medical Surgical Nursing in South Western Nigeria.**

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Participation in this study is voluntary; one can withdraw from the study at any time without any penalty whatsoever. This is purely an academic exercise and all information you give shall be kept confidential. Students do not need to write their names on the Learning Preference Assessment (LPA) but will be required to write their school number for ease of analysis and comparing findings.

A pre and post-test on some selected topics in Medical Surgical Nursing will also be administered to test for effect of self directed learning on learning outcome

Your school is one of the six schools participating in the study and it falls under the treatment group.

Thank you,

Yours faithfully,

P. O. Guobadia (Mrs)

Approved
3/6/2014
SACRED HEART HOSPITAL
Abeokuta
SCHOOL OF NURSING

Pauline O. Guobadia,
Department of Nursing,
University of Ibadan,
Ibadan.
14th May 2014

The Principal,
School of Nursing,
Ijebu-Ode,
Ogun State.

Dear Madam,

PERMISSION TO USE YOUR STUDENTS AS PARTICIPANTS IN MY RESEARCH

I am Pauline GUOBADIA, a Ph.D student from the Department of Nursing, College of Medicine, University of Ibadan. I am conducting a study on **Effects of Self-directed Learning Strategies on Learning Outcome of Nursing Students in Medical Surgical Nursing in South Western Nigeria.**

I am writing to take permission for your students to participate in this research being undertaken as part of my PhD studies. I am moving round institutions to learn about the adoption of methods of learning that would facilitate learners' independence of teachers in Nigerian schools of nursing. The purpose of the study is to assess the degree of readiness for self-directed learning of nursing students' using the self-directed learning strategies readiness scale as well as to find out the relationship between the readiness of the student nurses and effectiveness of using self-directed learning strategies in teaching them.

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Thank you,

Yours faithfully,

P. O. Guobadia (Mrs)

Approved.
SCHOOL OF NURSING
Principal
Date 15/5/14
P.M.B. 2056, IJEBU-ODE