SCHOLASTIC:
Journal of Natural and Medical Education
Volume 2 Issue 5, Year 2023 ISSN: 2835-303X
https://univerpubl.com/index.php/scholastic

The Competence-Based Curriculum in Nursing Education: A Guarantee for Nurse Student Critical Thinking Development

Dr. Eyinga, Paul Marius
Nurse, PhD in Curriculum Studies and Teaching, Adventist University Cosendai, Cameroon

Article Information

Received: March 08, 2023
Accepted: April 08, 2023
Published: May 09, 2023

Keywords: *Nursing, Competence-based-Curriculum, Nurse Student Critical Thinking*

ABSTRACT
A critical literature review on nursing standards of practice reveals that critical thinking is crucial for professional nursing. But from the researcher experience and observations, practising nurses in Cameroon don't show enough evidence in the mastery of such a fundamental dimension of nursing, although Cameroon has experienced the university nursing education since 2000. Today, Bachelors, Masters, and PhDs are trained in Cameroon universities. A glance on the nursing records in many hospitals, when they exist, shows usually only biological parameters, dressings and drug treatments. Practising nurses seem to limit themselves to the application of medical prescriptions. In some hospitals, it is still scarce to find a nursing file to document nursing interventions, nor is there a nursing care plan. This is why the objective of this article is to suggest a model of curriculum design that can foster critical thinking for nurse students during their training and, once in the field they can meet the international standards. To attain this objective the researcher critically reviewed the history of nursing curriculum and some concepts like curriculum and competence. From a theorical analysis the researcher found that competence-based curriculum in nursing education is the guarantee of nurse student critical thinking development. The competence-based curriculum in nursing education relies on principles of curriculum content organisation as suggested by Ornstein and Hunkins (1988) with two basic dimensions: the horizontal and vertical dimensions. It also relies on the implications of the elaboration theory as proposed by Reigeluth (1979), with its seven components: sequencing, organisation, summary, synthesis, analogy, cognitive strategy activation and learner control.

Introduction

In the United States of America, before Nightingale (1898), people thought that the role of the nurse was to assist the physician and to maintain a sanitary environment suitable for proper nutrition and healing (Debora, 2009). This is why nursing education was originally provided in hospitals. Opposed to this consideration, the American Society of Superintendents of Training Schools for Nurses recommended in 1902 that nursing education should take place in the

university; as the hospital model was not able to promote scientific nursing knowledge. In this sense, Judd and Sitzman (2014) report that nurse leaders of the time promoted educational reforms that sought to make university-affiliated programmes and theories relating to all aspects of patient care an integral part of nursing education.

As Judd and Sitzman (2014) report, in 1893, the superintendents of nursing in Canada and the United States were determined to standardise nursing curricula in all training schools. In this sense, the National League for Nursing Education was established with the mission of determining the goals of education with respect to nursing curricula (Judd & Sitzman, 2014). These authors argue that it was in the same vein, that the American Nurses Association (ANA) was created, with the responsibility of establishing criteria related to the scope and practice and legislation of the nursing profession.

The ANA (1969) specifies that those licensed to practice nursing should be prepared in universities and that the minimum preparation for a professional nurse should be a bachelor's degree. In this perspective, Graf (2006) showed that better patient outcomes are associated with bachelor nurses, which justifies why hospitals prefer to hire bachelor nurses. Many other recent studies (Aiken, Clarke, Cheung, Sloane and Silber, 2003; Estabrooks, Midodzi, Cummings, Ricker and Giovannetti, 2005; Tourangeau, 2007) show that hospitals with more bachelor nurses have lower mortality rates. For this reason, less qualified nurses are encouraged to continue their education to obtain bachelor and advanced degrees in nursing (Te, 2006).

Brown (1948) argues that nursing education belongs to higher education and that higher education programmes for nurses should prepare students for complex clinical situations that require a high level of education and skill. Therefore, in the 1960s, the higher education curriculum for nurses included leadership, management, community health and teaching skills, which helped to differentiate it from the State Nurse and Nurse Assistant degrees (Kelly & Joel, 2002). Since the ANA (1969) affirms the bachelor's degree as the basic degree for the nursing profession, the number of bachelor's degree programmes in nursing has increased, so that in 2005, in the United States, there were at least 674 bachelor's degree programmes (Amos, 2005).

With such a large number of programmes offered at different institutions, some disparities and inconsistencies are possible. Therefore, in order to regulate nursing practice, the ANA (2010) established the scope and standards of nursing practice, that is the competencies that nurse students are expected to demonstrate upon graduation. The scope of nursing practice describes the level of nursing competence common to all nurses; and the standards of professional nursing practice are authoritative statements about the tasks that all nurses are expected to perform competently (ANA, 2010). They argue that standards are the levels of nursing competence demonstrated by the Nursing Process (NP), which is critical thinking in Nursing. The ANA (2010) outlined six core competencies that every nurse should demonstrate:

- **Competency 1:** The nurse collects complete and relevant data related to the health and/or situation of the care recipient.
- **Competency 2:** The nurse analyses the collected data to determine nursing diagnoses or problems.
- **Competency 3:** The nurse identifies expected outcomes for an individualised plan for the care recipient.
- **Competency 4:** The nurse develops a plan that prescribes strategies and alternatives for achieving the expected outcomes.
- **Competency 5:** The nurse implements the developed plan.

- **Competency 6:** The nurse evaluates progress towards the achievement of the expected outcomes.

These competences relate to all successive stages of the nursing process.

As in the United States of America (USA), the College of Nurses of Ontario (2009) has also established standards. These standards represent the performance criteria for nurses and indicate to the public and other health professionals the scope of practice for nurses. These nursing competences are actually expectations that help protect the public; they inform nurses of their responsibilities and the public of what they can expect from nurses (College of Nursing of Ontario, 2009).

As in the USA and Canada, in Europe, the International Council of Nurses (1989) has set international standards for nursing education and practice. It has called for high standards of nursing performance at both general and advanced levels of practice. In the same vein, France has also established ten core competencies for the practice of the nursing profession (Arrêté du 31 juillet 2009). Five of them are also linked to the successive stages of the nursing process:

- Assessing clinical situations,
- Establishing nursing diagnoses,
- Designing and conducting a nursing project (care plan),
- Implementing diagnostic and therapeutic actions,
- Organise and coordinate nursing interventions.

In Africa, nursing and nursing education were affected by colonisation and in most African countries nursing education was introduced by missionaries. For example, Sister Henrietta Stockdale established a great nursing school in Kimberly, South Africa, in 1899, where the first modern professional standards were established (Dolamo & Olubiyi, 2013). In fact, in South Africa, the first university programme started in 1937 with the University of Witwatersrand (Horwitz, 2011). This was a two-year programme designed to train nurses to teach (Horwitz, 2011). Indeed, Ehlers (2002) explains that the Bachelor of Nursing programme began in South Africa in 1955.

In Nigeria, Adebanjo and Olubiyi (2008) explain that university training of nurses began in Nigeria in 1965 at the University of Ibadan, which prepared students for a bachelor degree with an emphasis on education and administration. However, long before this, the University of Ile-Ife (Obafemi Awolowo University) had already started awarding the Bachelor of Science in Nursing degree (Adebanjo & Olubiyi, 2008).

Furthermore, Koppler and Uys (2013) report that in Botswana, the Ministry of Health restructured the nursing education programmes in 1990 to harmonise the nursing education programmes from the basic diploma to the Bachelor of Nursing degree. As a result, there are now four categories of nursing programmes in Botswana (Koppler & Uys, 2013): Basic Diploma, Post-Basic Diploma, Bachelor Degree, and Postgraduate. The special pathway Bachelor's degree programme was launched in 1978 in Botswana, and the direct degree was launched in 2000 with two streams: high school leavers who enter in year one for four years and Registered Nurses who enter in year two for three years.

An analysis of the standards of nursing practice from different parts of the world reveals that they all focus on critical thinking competence. Critical thinking is the mental process by which information is sought, obtained, evaluated, analysed, synthesised and conceptualised. This implies the nursing process (NP), which is an approach to decision-making in nursing, organised into five phases: Data Collection, Diagnosis, Planning and Outcome Identification,

Implementation and Evaluation. The NP is of great importance to nursing practice because it is used as a problem-solving activity to reflect on a plan of care as the basis for professional practice in everyday nursing practice. For this reason, Rush, Fergy and Weels (1996) propose that the NP is an organised, systematic and deliberate approach to nursing care with the aim of improving the standards of nursing care.

Critical Thinking is therefore a fundamental dimension of nursing. Thus, an effective nurse is one who demonstrates mastery in the implementation of the NP. However, in Cameroon, nurses do not yet seem to meet this requirement. Indeed, it can be said that internationally, nursing education has evolved rapidly since the introduction of the Bachelor of Science in Nursing in universities. For example, in Kenya, many changes have taken place in nursing education over the past 15 years (Chege, Mwaniki & Abuya, 2013). Conversely, although Cameroon has also witnessed the introduction of undergraduate and postgraduate nursing education programmes in some government and private universities since 2000, the situation does not seem to have improved much. For example, in many hospitals, very few nurses use a nursing model to collect information from patients, as they are taught during their training (Eyinga, 2010). In doing so, they cannot adequately assess patients' health needs and expectations and analyse patients' health situations to develop scientifically valid nursing diagnoses. This makes it difficult for them to identify appropriate nursing interventions.

An observation of the nursing records, when they exist, shows that the few elements that are usually included are biological parameters, dressings and drug treatments. From this situation, it appears that their interventions are not always adapted to the patient's clinical condition and are limited to the application of medical prescriptions. In addition, nurses in Cameroon rarely document their interventions to ensure traceability. In some hospitals, there is no nursing file to document interventions, nor is there a nursing care plan, which is the information storage medium for the nurse. Instead, nurses only use a follow-up sheet, where they fill in biological parameters.

This situation seems to suggest that in Cameroon, most nurses are not yet demonstrating the competencies expected of them and lack critical thinking competence, which, according to international standards, is the main outcome of any nursing programme. This highlights the issue of programme and learning assessment, including among other variables, teaching methods, and content organisation. In fact, in Cameroon, as concerns nursing curricula, the evaluation of learning seems to be more oriented towards an evaluation of knowledge and rarely an evaluation of competences. Nursing curricula, according to international standards, should be organised and implemented in such a way that graduate students are equipped with critical thinking. If this is done, programmes would be better able to determine the ability, preparedness and quality of nurses upon graduation. This could be a good predictor of the quality of health services to be provided, and an unquestionable guarantee of nursing student critical thinking development. The introduction of post-graduate programmes in Cameroon would normally ensure a high level of competence in nursing practice and education.

In fact, in examining some of the nursing curricula developed in Cameroon, it appears that they do not always include specifications regarding objectives, expected competences, content elements, teaching methods, how and where learning is to take place, resources to be mobilised. These specifications are critical aspects that should not be neglected for successful learning. Indeed, in Cameroon, most nursing education is offered at the post-secondary level, as opposed to higher education.

In terms of curriculum development, it can be said that in Cameroon there is no uniformity in terms of curricula. It is a situation where each school designs its own curriculum, without external inputs. This leads to different lengths and contents for the same degree programme, with

the same entry qualification. Curriculum development and implementation activities should involve actors from within the educational arena, such as students, teachers, parents, administrators and staff, and people from outside the educational arena, such as curriculum experts, educational inspectors, professional organisations, evaluation institutions, educational publishers and the government (Ornstein & Hunkins, 1988).

The situation described above demonstrates that critical thinking competence is a central ability in nursing education and practice, but our experience as clinical nurses, nurse educator and researcher reveals little evidence that nursing graduates demonstrate critical thinking skills, internationally recognised as the key competence a nurse should display at the exit of their training. Instead, we found that nurses appear to rely most often on medical orders rather than critically collecting relevant patient data, analysing the collected data to derive diagnoses or nursing problems, identifying appropriate patient outcomes, and developing a comprehensive care plan, all of which are indicators of critical thinking in nursing. These observations led us to suspect that clinical nurses are not sufficiently equipped with critical thinking skills, which are internationally recognised as the main outcome of nursing curricula. Yet nursing curricula in Cameroon contain specific courses that should help students develop critical thinking skills. It is for this reason that our reflection questions the conditions of possibility of organising nursing curricula so that at the end of their programme of study, graduates demonstrate critical thinking skills so much expected and demanded of them on the international level.

The concept of curriculum

The term curriculum was first used in Scotland in 1820 (Dillard, Siktberg & Laidig, 2005). In fact, these authors claim that it derives from the Latin word currere, which means to run. Wiles and Bondi (1989) add that the word was later translated to mean a course of study or a programme to be followed. Before 1892, American schools were mainly concerned with teaching children to read and write (Brubacher, 1947). Brubacher informs that it was in the 1900s that the principles and processes of curriculum began to surface. In fact, Ornstein and Hunkins (1988) report that the main American contributors to the birth of curriculum as a discipline include Franklin Bobbiit, Werrett Charles, Harold Rugg, Hollis Caswell and especially Ralph Tyler.

Today, it can be said that there are as many definitions of curriculum as there are curricularists, depending on their philosophical worldviews. For example, Caswell and Campbell (1935) define it as the set of experiences that learners have under the guidance of the school, while for Taba (1962) the curriculum is a plan for learning. Doll (1996), on the other hand, preferred the term "engagement" rather than "experience" to define curriculum, because for him it is not easy to see students experiencing an activity, but rather to see them directly engaging in learning activities (Tambo, 2012). Thus, for Doll (1996), curriculum is the formal and informal content and process by which learners acquire knowledge and understanding, develop skills and change attitudes, appreciations and values under the auspices of the school.

A critical review of the literature on the concept of curriculum reveals that the consistent components of curriculum include the objectives, content, sequence, teaching/learning processes, location and means by which learning takes place (Beauchamp, 1968; Doll, 1996; Longstreet & Shane, 1993; Ornstein & Hunkins, 1993; Wiles & Bondi, 1989). Therefore, according to Quinn (1980), the curriculum answers the following questions: What is to be taught and/or learned? Why should it be taught and/or learned? How should it be taught and/or learned? Where should it be taught and/or learned? When should it be taught and/or learned?

The curriculum can also be conceptualised as the actual arrangement of its components (Ornstein & Hunkins, 1988). The components involved are goals, purposes and objectives, content, learning experiences and assessment approaches. In this sense, Smith and Ragan (2005) state that

curriculum design is a decision about scope, organisation, integration, sequence, continuity, articulation and balance.

The point of view of Taba (1962) has greatly influenced nursing curricula. According to him, the curriculum should contain a statement of specific aims and objectives, and indicate a certain selection and organisation of content. It implies or manifests specific models of learning and teaching, and includes a programme for the evaluation of outcomes (Taba, 1962). Therefore, Diekelmann (1993) states that the nursing curriculum includes all planned and daily learning experiences of students and teachers, including organised teaching and clinical experiences. Moreover, Bevis (1989, 2000) makes it clear that the curriculum encompasses the interactions between students and teachers and the transactions that take place. Nelms (1991) adds that in nursing, the curriculum is about personal learning through transpersonal interaction. This means that the curriculum is "the educational journey, in an educational environment in which the biography of the student's person interacts with the history of the nursing culture through the biography of the teacher's person, to create meaning and release potential in the lives of all participants" (Nelms, 1991, p.6).

The concept of competence

In much of the literature, the words competence and competency are used either synonymously or ambiguously, even though there are important differences between them. Watson, Stimpson, Topping and Porock (2002) report that there is considerable confusion in the definition of clinical competence and that most of the methods used to measure it have not been developed in a systematic way, and that issues of reliability and validity have barely been addressed. Eraut (1994) argues that the term competence has a perplexing relationship with other concepts such as ability, expertise, or performance. But in fact, there are subtle boundaries. In this sense, Messick (1994) and Worth-Butler, Murphy and Fraser (1994) indicate that competence differs from performance in that competence refers to what a person knows and can do in ideal circumstances, it is about potentialities and may include attitudes, values, judgement capacity and personal dispositions, whereas performance is about actual situated behaviour, this means what an individual does in the real-life situation. Again, competence is simply the potential for performance, a quality possessed by someone (Short, 1984), while performance is a demonstration, an ability to do something (Eraut, 1994). On the other hand, Santu (2015) refers to competence as a state of being, and Cate and Scheele (2007) consider it as a holistic concept that carries the idea of a person's overall ability to do something effectively. This explains why the American Nurses Association (ANA, 2010) envisages competence as "an expected level of performance that integrates knowledge, skills, abilities and judgement" (p. 10).

On the other hand, competence, ability and performance are all linked to standards that define the level of achievement. Specifically, competence is achieved through the performance of a number of components of competence, called skills or competencies (Watson, Stimpson, Topping, & Porock, 2002). This clearly highlights the difference and relationship between competence and ability. Furthermore, Boyatzis (2007) refers to competence as the underlying characteristics of an individual that are causally related to job performance. This implies that competence concerns abilities, that is the application of specific knowledge or skills, successfully in new situations as well as in familiar tasks for which there are prescribed standards (Lane & Ross, 1998). For this reason, Kak, Burkhalter and Cooper (2001) view competence as the ability to perform a specific task in a way that achieves desirable outcomes. It is noticeable that these conceptions of competence try to link it to performance. But competence (can do) does not always predict performance (does) (Southgate & Dauphinee, 1998). The relationship between the two is therefore not linear but complex. In fact, while competence is defined in terms of a person's ability to achieve, performance is the resulting behaviour,

something that the person actually does and that can be observed (Kak et al., 2001).

During their training, nurses must demonstrate a minimum level of competence to move to the next level or to graduate. For this to be possible, ministries of health, nursing organisations and other health care organisations need to set appropriate competence expectations or standards (Kak et al., 2001). These standards should form the basis for assessing competence and help determine the effectiveness of educational interventions. These standards are also useful for filling knowledge and skill gaps and for evaluating and improving training. In fact, low scores on competence assessments after training may indicate that the training was ineffective, poorly designed, poorly presented or inappropriate (Kak et al., 2001). The American Academy of Ambulatory Care Nursing (AAACN) (2012) defines competence as the ability to demonstrate the critical thinking, technical and interpersonal skills necessary to perform a particular job. In addition, McClarty and Gaertner (2015) indicate that in some cases two levels of competence are sufficient (pass or fail, low or high); but often more levels are useful for further differentiation: basic/ elementary, skilled practitioner, exceptional/expert and master.

1. Basic/elementary proficient learners are responsive, acknowledge requests quickly, listen attentively and command respect and admiration;
2. Competent practitioners are reliable team leaders who identify and communicate compelling motivations. They adjust their influencing style to meet the needs of each team member and offer recognition and encouragement to keep the team moving forward;
3. Exceptional/expert practitioners communicate a legitimate and consistent agenda across a variety of functions, understand the power dynamics and responsibilities of leadership, clearly articulate situational benefits and validate potential concerns;
4. Masters develop and implement appropriate and creative recognition, rewards and incentives to activate an organisation. They influence all levels of the organisation and external stakeholders through strong communication, powerful messages and personal appeal. They remain consistently optimistic, especially in the face of challenges.

Similarly, Howanitz, Valenstein and Fine (2000) identify four levels of competence:

1. Level One: what an individual “knows”, as measured by general knowledge;
2. Level Two: what an individual “knows how” to do, as measured by competence;
3. Level Three: what an individual “shows how” to do, as measured by performance;
4. Level four: what an individual “does”, as measured by their action.

Since the literature shows a perplexing relationship between competence and performance, some authors have tried to measure competence in terms of performance, but competence should not be inferred from performance (While, 1994). Competence-based education programmes are becoming increasingly popular around the world because of their long-term viability, which depends on the credibility of the credentials of these programmes in the eyes of employers; thanks to the quality of the assessment used to decide who gets a credential (McClarty & Gaertner, 2015). Thus, for these authors, two components are essential in the competence-based curriculum: the competence framework and the competence assessments. The competence framework clearly describes the skills, abilities and knowledge needed to perform a specific task. Competence assessments are used to determine mastery and to award credits. In fact, McClarty and Gaertner argue that the value of credentials in the competence-based curriculum lies in the reliability and validity of these assessments. Thus, for these authors, test developers and programme administrators should pay significant and sustained attention to the validation of assessment instruments and the setting of meaningful proficiency levels. Thus, there is a cut-off

score that separates the competent learner from the not yet competent learner. This distinguishes those who receive credit, or different levels of credit, from those who do not. Compared to traditional higher education programmes that hold time constant and allow the amount of learning demonstrated during that time to vary, competence-based programmes instead hold the standards of demonstrated learning constant, but the time students must spend to achieve them may vary.

Regardless of the level of competence as discussed above, no single assessment method or tool can guarantee competence (ANA, 2008). Indeed, competence is situational and dynamic, and the context determines which skills are needed. Nevertheless, the methods suggested in the literature vary (Levine & Johnson, 2014): assessment at specified intervals using standardised competence assessment tools that require demonstration feedback on the required procedural competence and clinical reasoning, case presentations, case studies discussed in groups, cognitive assessment of role expectations and individual abilities through self, peer, supervisor and patient, competence criteria tools, continuing education courses related to individual nursing practice, competence assessment, competence and/or clinical reasoning assessment examinations, national certification, observation of daily work, peer reviews, performance evaluation, portfolio development and review, practice reviews, presentation at local, regional and national meetings, publication in a scholarly journal, quality improvement indicators, reflective discussions on nursing practice, self-assessment tools, self-directed learning activities, clinical and/or computer simulations, self, peer, supervisor and client competence assessment inventories.

Additionally, the ANA (2008) maintains that methods of competence assessment also include direct observation, patient records, demonstrations, skills laboratory, accreditation, virtual reality testing, targeted continuing education with outcome measures, employer validation of competence, and practice assessments.

Similarly, Kak et al. (2001) suggest different methods of assessing competence. But they point out that, good predictors of job performance are not necessarily the best estimators of competence, as poor job performance can have many causes, not just a lack of competence. However, as these authors report, good job performance generally implies the presence of the skills needed for the job, especially for reasonably complex tasks.

Curriculum content organisation as a guarantee of nursing student critical thinking development

Ornstein and Hunkins (1988) present two basic dimensions of curriculum organisation: the horizontal and vertical dimensions. The horizontal dimension focuses on scope and integration while the vertical dimension focuses on sequence and continuity. As Tambo (2012) indicates, curriculum scope refers to all the subjects that make up the curriculum, which means the content of the whole curriculum or the content of the subject. For him, integration means linking the elements of the scope of one subject/course (objectives, content, learning activities, teaching materials, teaching methods and assessment strategies) with those of another subject/course. Courses are therefore not isolated from each other.

Continuity refers to the vertical repetition of certain learning tasks (skills) that are of central importance (such as critical thinking), but at an increasing level of sophistication or depth or breadth of knowledge (Tambo, 2012). The aim is for the learner to fully master these tasks. Curriculum articulation, on the other hand, refers to the interrelatedness of various aspects of the curriculum, the relationship being either vertical or horizontal (Ornstein & Hunkins, 1988). Vertical articulation deals with the relationships between critical aspects of the curriculum sequences and the lessons, topics and courses that appear later in the curriculum sequencing. Horizontal articulation concerns the relationship between simultaneously occurring elements of the curriculum.

Sequence is about the order in which content will be learned so that each successive learning experience builds on the previous one (Tambo, 2012). Sequence can be organised in so many different ways: hierarchy of learning within the subject, from concrete to abstract, from simple to complex, from near to far, from part to whole or from whole to part, teacher preference, learner interests, developmental stages of learners (Schubert, 1986; Ornstein & Hunkins, 1988, cited in Tambo, 2012). In this sense, Posner and Rudnitsky (1997) classified the curriculum sequencing structure into five main categories:

1. **World-related structure:** In this design, content is clustered and sequenced according to the way things in the world seem to be organised: by time, space and physical characteristics (historical periods, spatial relationship: countries, continents, world).
2. **Inquiry-related structure:** In this sequence and organisation, ideas will be taught together because they represent similar phases of inquiry. Designers would sequence and organise instruction by steps of inquiry (research methods, nursing process).
3. **Utilisation-related structure:** here ideas are grouped together according to how skills will be used in the future. So, the first concepts, facts, procedures or theories to be taught are those to be used first.
4. **Learning-related structure:** This design organises information in such a way that new learning builds on relevant prior knowledge. It is a prerequisite-based organisation.
5. **Concept-related structure:** This design uses the structure of the discipline to organise the content. The most super-ordinate, all-inclusive concepts or principles are taught first, and then the more specific cases of the concepts or applications of the principles are taught later.

The elaboration theory as a guarantee of nursing student critical thinking development

Reigeluth developed this theory in 1979. Before him, Gagné (1968, 1977) had identified the critical relationships between subject/course contents. He coined the concept of prerequisites for learning. This concept implies that some knowledge must be acquired before other knowledge is acquired. He also invented the concept of a learning hierarchy, which refers to a complete set of prerequisites for a given idea. This is why a hierarchical approach is used today in the analysis of learning tasks.

In fact, educational theorists distinguish between the micro and macro levels of education. The former deals with methods of teaching a single idea and the latter is broader and deals with methods that relate to many ideas. Elaboration theory deals with strategies organised at the macro level. It helps the content to be taught to be more meaningful to the learner, so that better learning and retention can take place. Therefore, according to Reigeluth (1979), teaching should start with an overview of the subject that presents some general, simple but fundamental aspects. Then, increasingly, the rest of the instruction presents more detailed aspects that deepen the general aspects. Similarly, instructional design theory advocates the use of prerequisite sequences in sequencing from simple to complex, combined with a synthetic and systematic review. This type of information organisation allows the learner to maximise learning. Although the theory is primarily aimed at the cognitive domain, it increases memorisation of skills to retain and transfer of information effortlessly as well as increasing motivation (Kumari, 2012). Reigeluth (1999) argues that the content to be taught should be broken down into the most basic concepts and should gradually move on to more complex concepts. This implies that concepts are developed in subsequent lessons. Teachers need to review the previous concept and refer to it while integrating it into the new lesson. This can be said to be a good method of organising relevant content and creating an optimised learning environment (Kowch, 2002).

The theory has seven components:

1. **Sequencing:** Sequencing involves the epitomisation of content (condensation). This means that information is broken down into three different types of content: conceptual, procedural and theoretical. Only one type of content is chosen for a lesson. Conceptual content includes certain sets of materials that have common characteristics. Procedural content includes sets of actions that achieve a goal. Theoretical content includes principles.
2. **Organisation:** The learning material is then organised according to the type of content chosen, from simple to complex.
3. **Summary:** After teaching the lesson, the material covered is reviewed and summarised again.
4. **Synthesis:** The information learned so far is then integrated and related to each other. This promotes retention of information and deepens learning (Clark, 2011).
5. **Analogy:** This involves bringing a familiar concept into the discussion to define a new concept. Thus, it builds on what the learner already knows, which facilitates learning.
6. **Cognitive strategy activation:** At this stage, learners are given a situation where cognitive skills are required, such as the use of pictures or diagrams to force the learner to interact or a situation that causes the learner to activate a previously learned cognitive skill (Clark, 2011).
7. **Learner control:** The final step is to decide how much control to give the learner; to what extent they can control the sequence of information learned.

The use of this theory in nursing education can help to foster the thinking skills of nursing students. The theory shows nursing educators and curriculum developers how to organise content from the simplest to the most complex elements. It leads nursing educators to review and refer to the previous concept or step while integrating the new concept or step into the new lesson. This practice will help student nurses to retain information easily. In addition, applying this theory to nursing education will tie everything together, and students will be able to grasp the entire critical thinking process as they will be able to understand each step in details. The theory prescribes organising courses into smaller, simpler blocks. In this way, nursing students will no longer be overwhelmed by the level of complexity of the nursing models, which are taught haphazardly in nursing programmes today, without any consideration of their level of complexity. Instead, with the elaboration model, we suggest that nursing models should be taught according to the schools of thought in Nursing, from the simplest to the most complex: School of Needs → School of Interaction → School of Adaptation → School of Health Promotion → School of Patterns → School of Caring. These levels of complexity should be observed within and between programmes. For example, the Bachelor programme should focus on the nursing models of the school of needs. Specific authors should be selected and taught each year. For example, first year students should be taught only Henderson, second year students only Orem and third year students Abdellah. The Master programme should focus on the nursing models of the school of interaction in the first year and on those of the schools of adaptation and health promotion in the second year. The doctoral programme would then focus on the School of Pattern and the School of Caring. On the contrary, today all these schools of though and nursing models are taught at undergraduate level, a situation that overwhelms students. With this theory, the content of the nursing programmes can be taught in small teaching units, with the nurse educator increasing the difficulty at the learner's pace rather than working on material that is too difficult or too simple. From this, it can be said that elaboration theory provides nursing education with a macro prescriptive framework for the choice of sequencing, combination and synthesis of content. Such a curriculum organisation guarantees the development of nursing student critical thinking competence.

Conclusion

The objective of this article was to propose a model of curriculum design that can foster critical thinking for nurse students during their training so that, once in the field they can meet the international expectations. This reflexion is rooted in the researcher experience and observations where he noted that practising nurses mostly rely on medical orders instead of critically and adequately assess patients' health needs and analyse patients' health situations to identify scientifically valid nursing diagnoses. From these diagnoses a critically thinking nurse plans patient outcomes and derives nursing intervention that should be evaluated after implementation. In fact, the few elements that are usually reported in the nursing records, are biological parameters, dressings and drug treatments. So, we found that, many nurses in Cameroon lack critical thinking competence, which, according to international standards, is the main outcome of any nursing programme. In addition, when examining some of the nursing curricula developed in Cameroon, it appears that they do not always include goals, objectives, expected competences, content organisation, teaching methods, how and where learning is to take place, resources to be mobilised. These specifications are critical aspects that should be involved in any curriculum document for successful learning. Indeed, it can be said that in Cameroon there is no uniformity in terms of nursing curricula. It is a situation where each school designs its own curriculum, without external inputs. This is the reason why the researcher critically reviewed some concepts like curriculum and competence. From that review the he proceeded on a theorical analysis and found that competence-based curriculum in nursing education is the guarantee of nurse student critical thinking development. The principles of curriculum content organisation as suggested by Ornstein and Hunkins (1988) and the elaboration theory proposed by Reigeluth (1979) were the basis of the analysis. Applying these principles and theory when planning the curriculum in nursing education will save the nursing profession in Cameroon by building student competences so that they can meet the international standards.

List of References

1. Adebanjo, F. & Olubiyi, K. (2008). *Reforms in nursing education: The national open university of Nigeria experience*. Retrieved on the 21st July 2018 from http://www.nou.edu.ng/noun/acde2008/acde_ en/papers.pdf
2. Aiken, L.H., Clarke, S.P., Cheung, R.B., Sloane, D.M. and Silber, J.F. (2003). Educational Levels of Hospital Nurses and Surgical Patient Mortality. *JAMA*, 290, 1617-1623. http://dx.doi.org/10.1001/jama.290.12.1617
3. American Academy of Ambulatory Care Nursing (AAACN). (2012). American Academy of Ambulatory Care Nursing position statement: The role of the registered nurse in ambulatory care. *Nursing Economic*, *30*(4), 233-239.
4. American Nurses Association (ANA). (1969). *Statement on graduate education in nursing*. American Nurses Association.
5. American Nurses Association (ANA). (2008). *Professional competence: Position statement.* ANA.
6. American Nurses Association (ANA). (2010). *Nursing: scope and standards of practice* (2nd ed). Md ANA.
7. Amos, L. K. (2005). *Baccalaureate nursing programs*. Retrieved in March 2019, from http://www.aacn.nche.edu/Education/nurse_ed/ BSNArticle.htm
8. Arrêté du 31 Juillet 2009 relatif au diplôme d'État d'infirmier.
9. Beauchamp, G. A. (1968). *Curriculum theory* (2nd ed.). The Kagg Press.

10. Bevis, E. O. (1989). *Curriculum building in nursing*. National League for Nursing Press.
11. Boyatzis, R. (2007). Competencies in the 21st century. *Journal of Management Development, (27)*1, 5-12.
12. Brown, E. L. (1948). *Nursing for the Future: a report prepared for the National Nursing Council*. Russell sage foundation.
13. Caswell, H. L. & Campbell, D. S. (1935). *Curriculum development*. American Book Company.
14. Cate, T O., & Scheele, F. (2007). Competency-Based Postgraduate Training: Can We Bridge the Gap between Theory and Clinical Practice? *Academic Medicine*, 82, 542-547. https://doi.org/10.1097/ACM.0b013e31805559c7
15. Chege, M. N., Mwaniki, P. K. & Abuya, T. O. (2013). Evaluation of a Tool for Assessing Clinical Competence of Master Science Nurse Students. *Journal of Biology, Agriculture and Healthcare, 3*(3), 53-63.
16. Clark, D. (2011). *Reigeluth's Elaboration Theory for Instructional Design*. Retrieved in March, 2018 from http://www.nwlink.com/ ~donclark/hrd/learning/id/elaboration_theory.html
17. College of Nurses of Ontario. (2009). *Professional Standards*. College of nursing of Ontario.
18. Deborah, M. J. (2009). *A new Century brings novel ideas and social concerns*. Jones and Bartlett publishers.
19. Diekelmann, N. L. (1993). Behavioral pedagogy: A heideggerian hermeneutical analysis of the lived experiences of students and teachers in baccalaureate nursing education. *Journal of nursing education, 32*(6), 245-250.
20. Dillard, N., Siktberg, L. & Laidig, J. (2005). Curriculum development: An overview. In D. M. Billings & J. A. Halstead (Dir.), *Teaching in Nursing: A Guide for Faculty* (2nd ed.) (pp.87-107). Elsevier & Saunders.
21. Dolamo, B. L. & Olubiyi, S. K. (2013). Nursing education in Africa: South Africa, Nigeria, and Ethiopia experiences. *International Journal of Nursing and Midwifery, 5*(2), 14-21.
22. Doll, R. C. (1996). *Curriculum improvement: Decision making and process* (9th ed.). Allyn & Bacon.
23. Ehlers, V. J. (2002). Nursing education in the Republic of South Africa. *Nurse Educator, 27*(50), 207-209.
24. Eraut, M. (1994). *Developing Professional Knowledge and competence*. Falmer Press.
25. Estabrooks, C. A., Midodzi, W. K., Cummings, G. G., Ricker, K. L. & Giovannetti, P. (2005). The impact of hospital nurse characteristics on 30-day mortality. *Nursing research, 54*(2), 74-84.
26. Eyinga, P. M. (2010). *Obstacles à l'autonomie de la profession infirmière dans les hôpitaux de première catégorie de Yaoundé*. (Unpublished Master Thesis). Catholic University of Central Africa, Yaoundé.
27. Gagné, R. M. (1968). Learning hierarchies. *Educational psychologist*, 6, 1-9.
28. Gagné, R. M. (1977). *The conditions of learning* (3rd ed.). Holt, Rinehart & Winston.

29. Horwitz, S. (2011). The nurse in the University: A history of university education for South African Nurses: A Case Study of the University of the Witwatersrand. *Nursing Research and Practice, 2011*, 1-9.

30. Howanitz, P., Valenstein, P. & Fine, G. (2000). Employee competence and performance-based assessment. *Archives of Pathology & Laboratory Medicine, 124* (2), 195-202.

31. International Council of Nurses (ICN) (1989). *Development of Standards for Nursing Education and Practice: A Guide for National Nurses' Associations*. ICN.

32. Judd, D. M. & Sitzman, K. (2014). *A History of American Nursing* (2nd ed.). Jones and Bartlett Publishers

33. Kak, N., Burkhalter, B., & Cooper, M-A. (2001). Measuring the Competence of Healthcare Providers. *Operations Research Issue Paper, 2*(1), 1-23.

34. Kelly, I. Y. & Joel, L. A. (2002). *The nursing experience: trends, challenges, and transitions* (4th ed). McGraw-Hill.

35. Klopper, H. C. & Uys, L. R. (2013). *The State of Nursing and Nursing Education in Africa A Country-By-Country Review*. Sigma Theta Tau Intl.

36. Kowch, E. G. (2002). *Selecting and Ordering Content as You Design the Learning Event(s)*. Retrieved on 18 April 2018, from http://www.ucalgary.ca/

37. Kumari, U. (2012). *Reigeluth's Elaboration Theory.* Retrieved on 28th May 2018, from http://www.slideshare.net/23umakumari/ reigeluthselaboration-theory.

38. Lane, D. S. & Ross, V. S. (1998). Defining competencies and performance indicators for physicians in medical management. *American Journal of Preventive Medicine, 14*, 229-236.

39. Levine, J. & Johnson, J. (2014). An organizational competency validation strategy for registered nurses. *Journal for Nurses in Professional Development, 30*(2), 58-65.

40. Longstreet, W. S. & Shane, H. G. (1993). *Curriculum for a new millennium*. Allyn & Bacon.

41. McClarty, K. L. & Gaertner, M. N. (2015). *Measuring master: Best practices for assessment in competency-based education*. Centre on Higher Education Reform.

42. Messick, S. (1994).The interplay of evidence and consequences in the validation of performance exercises. *Educational Researcher 36*, 13-23.

43. Ndatsu, P. N. (2002). Nursing and midwifery council of Nigeria's role in maintaining standards in nursing education and practice. *International Journal of Nursing Education Scholarship, 10*(1), 1-8.

44. Nelms, T. (1991). Has the curriculum revolution revolutionized the definitions of curriculum? *Journal of Nursing Education, 30*(1), 5-8.

45. Nightingale, F. (1898). *Notes on nursing: what it is, and what it is not*. Appleton and company.

46. Ornstein, A. C. & Hunkins, F. P. (1988). *Curriculum: Foundations, principles and issues.* Allyn & Bacon.

47. Posner, G. J. & Rudnitsky, A. N. (1997). *Course design: A guide to curriculum development for teachers.* Longman.

48. Quinn, F. M. (1980). *The Principles and Practice of Nurse Education*. Croom Helm.

49. Reigeluth, C. M. (1979). In search of a better way to organize instruction: the elaboration theory. *Journal of Instruction Development, 2*(3), 8-15.

50. Reigeluth, C. M. (1999). The elaboration theory: Guidance for scope and sequence decisions: Instructional design theories and models. *A new paradigm of instructional theory, 2,* 425-453.

51. Rush, S., Fergy, S., Wells, D. (1996). Professional development. Care planning: knowledge for practice (continuing education credit). *Nursing Times, 92*(36), 1-4.

52. Santu, K-U. (2015). *Nurse competence of graduating students* [non published thesis] University of Turku, Faculty of medicine, Department of Nursing Sciences, Doctoral Program in nursing sciences.

53. Short, E. C. (1984). Competence re-examined. *Educational Theory, 34*(3), 201-207.

54. Smith, P, L., & Ragan, T. J. (2005). *Instructional design* (3rd ed.). John Wiley & sons, Inc.

55. Southgate, L. & Dauphinee, D. (1998). Maintaining standards in British and Canadian medicine: The developing role of the regulatory body. *British Medical Journal, 316*(7132), 697-700.

56. Taba, H. (1962). *Curriculum development: Theory and practice*. Harcourt, Brace &World.

57. Tambo, L. (2012). *Principles and methods of teaching* (2nd ed.). Leke Tambo.

58. TE, N. (2006). US Department of Health and Human Services: a need for global health leadership in preparedness and health diplomacy. *American Journal of Public Health, 96*(1), 11-3. doi: 10.2105/AJPH.2005.076885.

59. Tourangeau, A. (2007). A press release. Hospital death rate study reveals wide variations and stresses importance of registered nurses. *Journal of advanced nursing,* 66(1), 22-32

60. Watson, R., Stimpson, A., Topping, A. & Porock, D. (2002). Clinical competence assessment in nursing: a systematic review of the literature. *Journal of advanced nursing, 39*(5), 421-431.

61. While, A. E. (1994). Competence versus performance: which is moreimportant? *Journal of Advanced Nursing,* 20,525-531.

62. Wiles, J. & Bondi, J. (1989). *Curriculum development: A guide to practice* (3rd ed.). Merill.

63. Worth-Butler, M., Murphy, R. J. & Fraser, D. M. (1994). Towards anintegrated model of competence in midwifery. *Midwifery,* 10, 225-231.