

Effect of Curriculum Duration and Entry Qualification on the Development of Bachelor Nurse Students' Critical Thinking Competence in the Centre Region of Cameroon

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ABSTRACT

The criticality of Critical Thinking in the profession of nurse is proved in every relevant literature. It is an imperative tool that nurses need to master so that they can provide quality care. But a critical analysis of bachelor nursing curricula revealed that all over the world bachelor degree programmes vary in their duration and sometimes in their entry qualification. The duration varies from two semesters to four years. Entry qualification varies from High School Diploma to Diploma in Nursing. We were then able to ask ourselves what is the effect of this variation on the development of nurse student critical thinking, especially in the Centre Region of Cameroon? This pushed us to state two objectives for this article: To find out whether there is any effect of entry qualification on students' Critical Thinking competence in bachelor degree curricula in nursing schools in the Centre Region of Cameroon; To find out whether there is any effect of the programme duration on students' Critical Thinking competence in bachelor degree curricula in nursing schools in the Centre Region of Cameroon. To reach these objectives, a cross-sectional survey was used. A convenient sample of 229 students was selected comprising 102 holders of High School Diploma and 127 holders of Diploma in Nursing. A critical thinking test made up of six open-ended questions was used for data collection. Descriptive and inferential statistical analysis were used base on independent T-test. Research ethical principles were rigorously observed. Findings revealed that, in nursing schools in the Centre Region of Cameroon, students with Diplomas in nursing ($m = 7.37$) exhibited better Critical Thinking skills than those with Baccalauréat ($m = 5.56$). and that, students who were offered a more extended programme ($m=8.10$) exhibited better Critical Thinking skills than those in who were offered a shorter programme duration ($m=5.87$). These findings confirmed the results of many other studies on similar topics.

KEYWORDS: *Critical Thinking, Programme Duration, Entry Qualification.*

INTRODUCTION

Pringle (2004) claimed that the Bachelor Programme in Nursing was established in Canada only in 1919 by the University of British Columbia. Today, there are three different programmes to enter the profession of nursing in Canada: The Registered Nurse Programme, the Licensed Practical Nurse or Nursing Assistant Programme and the Bachelor degree programme. As there was confusion in Canada, between the role of assistant nurses and that of registered nurses and potential conflicts between the two groups, the Special Committee on Nursing Assistants recommended that the two programmes be combined, and the position of assistant nurse eliminated (Mussallem, 1965). That is why, from 1970, nursing programmes shifted from hospitals to colleges and universities with the first transfer being from the Riverview Hospital to the British Columbia University in 1971 (Pringle, 2004). He specified that the shift from hospitals to universities happened concurrently with the transfer of authority for the programme from the Ministry of Health to the Ministry of Education. He explained that this first university programme was two years in length with the first year being common with the first year for registered nurse programme. From that moment, nursing education witnessed a decisive turn because many other universities (Manitoba, Brandon) started to offer a

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four-year bachelor degree in nursing with some universities giving students opportunity to exit after three years with a diploma in nursing and qualified as registered nurses (Pringle, 2004). The author highlighted that there are so many different durations of the bachelor degree programmes in Canada: two-year, three-year, three-year and four-year.

On the other hand, Global Knowledge Exchange Network (2009) reported that, in nursing, the bachelor degree is moving to become the required standard for entry to practice. As concerns entry qualifications the author maintained that in the USA, admission requirements to the bachelor degree programme depend on the nursing track and the institution, with:

1. Direct admission from high school for a four-year generic nursing programme;
2. Indirect admission for holders of associate degrees in nursing.

In Canada too, Pringle, Green, and Johnson (2004) noted that there are various entry qualifications into bachelor degree programme in nursing:

1. A two-to-three-year programme for students with previous university degrees or credits;
2. A three-to-four-year programme for students without previous university degrees or credits.

As well, in Australian, in some universities like the University of Notre Dame, enrolment in the Bachelor Degree Programme differentiates between high school leavers and holders of diploma in nursing.

In Brazil, in 1949 the government passed a law stipulating that nursing schools must, from that time forth, be attached to university centres or colleges of medicine (Silva & Baptista, 2007) thanks to the Brazilian Nurses Association (Oguissa & De Freitas, 2015).

In the same line of thought, Chan and Wong (1999) informed that in China the first nursing school was established in 1888 by an American, Ella Johnson. The nursing education rapidly evolved in China so that in 1915 there was already a well-established professional certification system with a five-year bachelor of nursing degree in 1920 (Hong & Yasushiro, 2003). The Chinese Government launched its first nursing programme in 1930 (Smith & Tang, 2004).

Santu (2015) reported that in Europe, 68% of nursing education is now offered at the higher educational level, with 33% of them in universities. He added that Nursing Education programmes averagely last three years in Europe with 68% of them leading to a bachelor's degree or its equivalent. The Directive 2005/36/EC and the modernised Directive 2013/55/EU instituted that the duration of initial nursing education in higher education must be at least three years with 4,600 hours of theoretical and clinical training which should account for at least half of the minimum duration of the programme.

Additionally, Adeleke (2010) detailed that, in Africa, Sister Henrietta Stockdale established a great nursing school in Kimberly, in South Africa, in 1899 where the first modern professional standards was set (Dolamo & Olubiyi, 2013). In fact, in South Africa, the first university-based programme started in 1937 with Witwatersrand University (Horwitz, 2011). This was a two-year part-time programme designed to capacitate diploma nurses for teaching (Howanitz, Valenstein, & Fine, 2000).). In fact, Ehlers (2002) explained that the Bachelor Degree Programme in Nursing commenced in South Africa in 1955.

In Nigeria, Adebajo and Olubiyi (2008) explained that the university-based education for nurses commenced in 1965 at the University of Ibadan, which prepared students for a bachelor degree with an emphasis on education and administration. Nonetheless, long before that, the University of Ile-Ife (Obafemi Awolowo University) started the basic bachelor degree of nursing (Adebajo & Olubiyi, 2008). Ayadiran, Irinoye, Faronbi and Mtshali (2013) also acknowledged part-time education for practising nurses to help them upgrade their education while staying at their job. They enlightened

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that historically nursing education was in the hands of the Ministry of Health and for that reason, it was so challenging to align it with national education reforms. An attempt to solve the issue as reported by Nkwati (2016) was to affiliate nursing schools to universities, but the strategy was unsuccessful because universities adopted rigorous rules for affiliation and there was also an insufficient number of nurses with enough qualification to teach at the university level. But in 2010, the Nursing and Midwifery Council of Nigeria (NMCN) established clear requirements to ensure that all nursing students meet university entry requirements (Ayandiran et al., 2013).

Besides, Koppler and Uys (2013) reported that, in Botswana, because accountabilities of different levels of nurses in the workplace were not clearly delineated and overlaps observed between varying levels of training in nursing, the Ministry of Health, in 1990, restructured the nursing education programmes to let the Registered Nurse be the unique entry level into nursing practice. The reform also recommended the harmonisation and dovetailing of nursing programmes from basic diploma to bachelor's degree in nursing. That is why today, four categories of nursing programmes exist in Botswana (Koppler & Uys, 2013): Basic Diploma, Post-basic diploma, Bachelor Degree, and Postgraduate. The bachelor degree was launched in 1978; the entry qualification was the Cambridge School Certificate; two years of nursing experience were also required (Koppler & Uys, 2013). These authors maintained that the direct bachelor 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).

In Cameroon, it was only in 1999, that the University of Buea launched a four-year Bachelor degree in Nursing, followed by Adventist University Cosendai (4 years) in 2004 and the Catholic University of Central Africa (3 years) in 2006. The first batch of this programme in University of Buea comprised holders of three years diploma in nursing and they had to enrol in year one like fresh students from high school. This is because, until today, there is no official regulation giving way for holders of State Registered Nurse Diploma to upgrade their education with a bachelor degree. Nonetheless, today holders of three years diploma are admitted in the Bachelor Degree Programme for one additional year to complete their degree. Again, the registered nurse programme is still under the custody of the Ministry of Public Health. In addition, Nkwati (2016) maintained that today in Cameroon, there is no visible professional body regulating nursing practice. Instead, he claimed that in 1961 the West Cameroon Nursing and Midwifery Council was created and was responsible for student admissions in schools, supervision of nursing programmes and examinations, issue of certificates and licenses to practice. What exists today is an umbrella organisation, under which are found Nurses, Midwives and Health Technicians created in 1984 to defend the honour, ethics, probity and independence of the mentioned professions, to register members of those various professions in the national register, to hold regular meetings and to collect registration fees (Law N° 84/010 of the 5th December, 1984). Until January 2018, the said organisation registered uniquely holders of State Registered Nurse Diploma (trained by the Ministry of Public Health (MPH)); and completely ignored holders of bachelor degree and any other certificates and degrees. But from that moment in time, they started registering holders of bachelor's degree in nursing. Though, by decision N°023/D/OPMS/P/SG on the 16th March 2022, the President of Cameroon Nursing Conseil stopped it once more.

In addition, many other nursing organisations exist in Cameroon (Cameroon Nursing Society, Cameroon Association of Nurses, Association of Nurse Educators Cameroon and so forth) but none of them has the authority to regulate nursing in the country as concerns admission requirements, design, development, implementation, and supervision of curricula, development of standards for practice. That is probably why so many ministries run nursing programmes in Cameroon (Nkwati, 2016): the Ministry of Public Health (MPH), the Ministry of Employment and Vocational Training (MEVT) and the Ministry of Higher Education (MHE).

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In fact, it could be said that, in Cameroon, there is no uniformity in terms of nursing programmes of studies. It is a situation where each school designs its own curriculum, without external inputs. This leads to different lengths, different admission requirements and different content scope and content organisation for the same bachelor degree programme, with:

- 1 Direct admission for freshmen from high school: 3 years for Catholic University of Central Africa and other French-speaking universities and 4 years for Adventist University Cosendai and English-speaking universities;
- 2 Indirect admission for HND holders, DESP holders and holders State Diploma in Nursing: 2 semesters for Catholic University and 3 semesters for Adventist University.

That is why the objectives of this article were:

- 1 To find out whether there is any impact of entry qualification on students' Critical Thinking competence in bachelor degree curricula in nursing schools in the Centre Region of Cameroon;
- 2 To find out whether there is any effect of the programme duration on students' Critical Thinking competence in bachelor degree curricula in nursing schools in the Centre Region of Cameroon.

THE CRITICALITY OF CRITICAL THINKING IN NURSING

Critical Thinking (CT) ability is crucial to any educated person, but it is unambiguously imperative to nurses for them to provide safe and comprehensive care, to problem solve, and to make suitable clinical decisions. In fact, many authors (Schaeffer & Rubenfeld, 2000; Boychuk, 2003; Fero et al., 2010) regard CT as a central component of nursing education and practise. Brunt (2005), McMullen & McMullen (2009), Cormier, Pickett-Hauber and Whyte IV (2010) reported on the centrality of developing CT skills in nursing education programmes. Accordingly, CT skills are viewed as crucial expected competences of nursing education programmes (Staib, 2003; Marchigiano, Eduljee & Harvey, 2011). This is because such skills are necessary to deal with complex care demands (Kaddoura, 2010) of the present healthcare environment.

Though the concept has only been recently addressed in nursing, it is gaining much in popularity. For instance, in 1992 the National League of Nursing in the USA maintained that nursing programme must measure CT as an outcome criterion for accreditation and that all nursing programmes must include CT in their curriculum. In the same line, the Royal College of Nursing, Australia (1997) also claimed that quality in nursing practise depends on educational preparation of nurses to ensure the ability of nurses to evaluate and modify nursing interventions critically. Moreover, Miller and Malcolm (1990) advocated the inclusion of instructional strategies that can enhance CT in all level of nursing. That is why Paul (1995) stipulated that nurse educators should abandon teaching methods that make learners passive recipients of information and adopt those that transform them into active participants. So, the concept of CT has become a core competence required from nurse students at the exit of their training. That is the reason why Schank (1990) pointed out that it is fundamental for nurses to master the skills of thinking and reasoning to constructively critique the value and application of new knowledge. For this to be possible, he maintained that nursing curriculum must stress the quality of the content, how the content is organised, and how students will be able to process and evaluate the information; because the diversity and the complexity of nursing practise oblige to train nurses who can think critically and creatively (American Association of Colleges of Nursing, 2008). For nurses, CT skills include the ability to think, apply, analyse, synthesize, and evaluate patient health situations (Schank, 1990).

Bandman and Bandman (1995) maintained that CT, in the field of nursing, refers to a rational examination of ideas, inferences, assumptions, principles, arguments, conclusions, issues, statements, beliefs, and actions. Furthermore, Schaeffer and Rubenfeld (2000) reported a consensus definition of CT specific to nursing, as proposed by an international panel of expert nurses that participated in a

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Delphi study from 1995 to 1998. Those experts agreed that CT is a crucial element of professional accountability and quality nursing care. They added that nurses who think critically demonstrate confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance, and reflection. These experts associated CT in nursing with the cognitive skills of analysing, applying standards, discriminating, information seeking, logical reasoning, predicting, and transforming knowledge.

Additionally, Kataoka-Yahiro and Saylor (1994) considered that in nursing, CT is reflective and reasonable thinking about nursing problems without a single solution and that it is all about deciding what to believe and do. To reach such a decision, the nurse uses a step-by-step, scientific process made of assessment, problem identification (diagnosis), planning, implementation, and evaluation. These steps are synthesised in a document known as a care plan. So, in nursing, CT goes beyond to comprise reflection of thoughts and recognition that nursing problems sometimes entail various solutions. That is the reason why the researcher likens CT in nursing to the nursing process.

To develop their CT competence, Thomas et al. (2014) suggested that nurse students should learn evidence appraisal, formulating a practice problem and use science-based theories and concepts to assess, enhance, and improve healthcare delivery phenomena. Kataoka-Yahiro and Saylor (1994) concluded that to make sound nursing judgments, CT must be used. However, people outside the profession usually consider nursing in a simplistic perspective in terms of “doing something” for or to a patient (give injections); whereas, nurses do a great deal of thinking, analysing and planning before doing something (Black, 2014). This entails the nursing process in its different phases. In this sense, ANA (2010) conceptualized the nursing process (NP) as the integration of singular actions of assessment, diagnosis, and identification of outcomes, planning, implementation, and evaluation. But in real life situation, the process is not that linear; it is heavily bi-directional, dynamic and iterative. Consequently, nurses who forgo these essential phases and move immediately into actions are not providing quality care, meaning care in a responsible and professional manner (Black, 2014).

In fact, to Black (2014) to learn to use the NP as a mechanism for CT and as a dynamic and creative approach to patient care is a valuable endeavour. Because the process stands for the cornerstone of nursing standards, it should be well mastered by every nurse. In the same perspective, ANA (2010) argued that the NP forms the foundation of the nurse’s decision-making and it is composed of significant actions taken by nurses. The process is dynamic, which means that nurses are continuously moving from one phase to another and then beginning the process again; they even often perform two or more stages at the same time (Black, 2014). All along the process, the nurse considers diversity amongst healthcare consumer (individual, family, group, community, or population) who is the focus of attention and to whom the nurse is providing services. Thus, the process is individualized to meet the unique needs of the healthcare consumer (ANA, 2010). The NP reveals the CT aspect of nursing, and it is focused on solving patient problems in professional practise (Black, 2014). That is why it is taught in schools of nursing across the world.

METHODOLOGY

A cross-sectional survey was used in this investigation to collect information from student nurses within a single period. The Centre Region of Cameroon, whose headquarters is Yaoundé, was selected. Final-semester bachelor degree student nurses constituted the target population of the study. The accessible population was 294 student nurses comprising 78 from the Adventist University Cosendai (UAC) and 216 from the Catholic University of Central Africa (UCAC). From these, a convenient sample of 229 students was derived comprising 71 and 158 students from UAC and UACA respectively with 102 holders of High School Diploma and 127 holders of Diploma in Nursing. The sample from UAC was made up of 16 and 55 holders of High School Diploma and holders of Diploma in Nursing respectively. The sample from UCAC was made up of 86 and 72 holders of High School Diploma and holders of Diploma in Nursing respectively. The instrument

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used for data collection was the researcher's designed and validated tool to measure nursing students' CT competence at the end of their bachelor degree programme in nursing. The instrument comprised six open-ended questions that required the students to collect data from a patient, to pose nursing diagnostics and justify them, to state nursing objectives from which he or she derived interventions and to organise them in a comprehensive plan of action (nursing care plan). These questions followed a vignette that presented the case to study. The Cronbach's alpha coefficients were 0.845. Students were allotted one hour to write the test, which was taken under true examination conditions. Two nurse educators assured the marking of the CT test. Each CT script was marked twice (two markers). The scores retained were the average scores from the two markers. Data collected benefited from descriptive and inferential statistical analysis using the Statistical Package for the Social Sciences (SPSS) version 19. The impact of entry qualification and the impact of the duration of the bachelor degree curriculum on student critical thinking competence in nursing schools in the Centre Region of Cameroon were examined using independent T-test. CT scores of students with baccalauréat or its equivalent and students with diplomas in nursing or its equivalent were compared. The CT scores of students from the 4-year programme and those from the 3-year programme were also compared. Research ethical principles were rigorously observed.

RESULTS

Programmes' description based on Adventist and Catholic curriculum documents' analysis

The bachelor degree programme in nursing is offered in two tracks with two different entry qualifications and different durations. Table N° 1 shows more details.

Table 1: Description of the bachelor degree programme of UAC and UCAC

Institution	Programme track	Duration	Entry qualification
UAC	Direct bachelor	4 years	Baccalauréat or equivalent
	Indirect bachelor	3 semesters	Diploma in nursing or equivalent
UCAC	Direct bachelor	3 years	Baccalauréat or equivalent
	Indirect bachelor	2 semesters	Diploma in nursing or equivalent

Source: University curriculum documents

In both universities, holders of diploma in nursing were given the opportunity to earn a Bachelor Degree in Nursing. This indirect bachelor was a flexible programme designed to meet the needs of adult learners and working registered nurses. It was built on the foundation of a Diploma in Nursing.

Effect of entry qualification in the bachelor degree curriculum in nursing schools in the Centre Region of Cameroon on student critical thinking

H₀₁: there is no significant impact of entry qualification in the bachelor degree curriculum in nursing schools in the Centre Region of Cameroon on student CT competence.

The independent variable in this hypothesis was entry qualification, while the dependent variable was student CT in two nursing schools in the Centre Region of Cameroon. The analyses below were done within and between two nursing schools in the Centre Region (UAC and UCAC). Independent t-test was used for within school (UAC). The responses were categorized into two groups based on entry qualification:

1. Group 1: Baccalauréat (BACC)
2. Group 2: Diploma in Nursing (Diploma).

Table 1: Independent t-test analysis of the influence of entry qualification on student critical thinking in nursing school (UAC) in the Centre Region of Cameroon (N= 71)

Entry qualification	N	Mean	SD	t-value
BACC	16	6.06	2.33	-2.73
DIPLOMA	55	8.70	3.64	

$p < 0.05$, $df = 69$; critical $t = 1.99$

Table 2 shows that the magnitude of the calculated t-value of 2.73 was higher than the critical t-value of 1.99 at 0.05 level of significance with 69 degrees of freedom. With this result, the null hypothesis was rejected and alternative retained. This means that there was a significant impact of entry qualification on student CT in UAC.

Since there was a significant impact of entry qualification on student CT in the nursing school (UAC), a further examination of the influence revealed that the mean value of Diploma in Nursing ($m = 8.70$) was higher than the mean value of BACC ($m=6.06$). Therefore, students with entry qualification "Diploma" exhibited better CT skills than those with entry qualification BACC in UAC.

Also, the independent t-test results for within school (UCAC) were categorized into two groups based on entry qualification:

1. Group 1: BACC
2. Group 2: Diploma

Table 32: Independent t-test analysis of the influence of entry qualification on student critical thinking in nursing school (UCAC) in the Centre Region of Cameroon (N=158)

Entry qualification	N	Mean	SD	t-value
BACC	86	5.46	2.39	-2.15
DIPLOMA	72	6.35	2.80	

$p < 0.05$, $df = 156$; critical $t = 1.97$

The results on table 3 for within school revealed that the magnitude of the calculated t-value of 2.15 was higher than the critical t-value of 1.97 at the 0.05 level of significance with 156 degrees of freedom. With this result, the null hypothesis was rejected and alternative retained. Therefore, there was a significant impact of entry qualification on student CT in UCAC.

Since there was a significant impact of entry qualification on student CT in UCAC, a further examination of the influence revealed that the mean value of Diploma ($m = 6.35$) was higher than the mean value of BACC ($m=5.46$). Therefore, students with entry qualification Diploma exhibited better CT skills than those with entry qualification BACC in nursing school UCAC.

With the independent t-test for between schools (UAC and UCAC), results were equally categorized into two groups based on entry qualification:

1. Group 1: BACC
2. Group 2: Diploma

Table 4: Independent t-test analysis of the influence of entry qualification on student critical thinking in nursing schools (UAC and UCAC) in the Centre Region of Cameroon (N=229)

Entry qualification	N	Mean	SD	t-value	p-value
BACC	102	5.56	2.38	4.48	0.00
DIPLOMA	127	7.37	3.39		

$p < 0.05$, $df = 227$; critical $t = 1.97$

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The results on table 4 for between schools revealed that the calculated t-value of 4.48 was higher than the critical t-value of 1.97 at the 0.05 level of significance with 227 degrees of freedom. Hence, the null hypothesis was rejected and alternative retained. This means that there was a significant impact of entry qualification on student CT in the two nursing schools in the Centre Region of Cameroon.

Since there was a significant impact of entry qualification on student CT in nursing schools in Cameroon, a further examination of the influence revealed that the mean value of Diploma (m = 7.37) was higher than the mean value of BAC (m = 5.56). Therefore, students with Diplomas exhibited better CT skills than those with BACC in nursing schools in the Centre Region of Cameroon.

Effect of the duration of the bachelor degree curriculum in nursing schools in the Centre Region of Cameroon on student critical thinking competence

H₀2: There is no significant impact of the duration of the bachelor degree curriculum in nursing schools in the Centre Region of Cameroon on student critical thinking competence.

The independent variable in this hypothesis was programme duration, while the dependent variable was student critical thinking in nursing schools in the Centre Region of Cameroon. An independent t-test was used to analyse the data. The responses were categorised based on programme duration and divided into two groups LONG for UAC which is 4 years and SHORT for UCAC which is 3 years:

1. Group 1: LONG
2. Group 2: SHORT

Table 5: Independent t-test analysis of the impact of programme duration on student critical thinking in nursing school in the Centre Region of Cameroon (N = 229)

Programme duration	N	Mean	SD	t-value
LONG	71	8.10	3.55	5.32
SHORT	158	5.87	2.61	

$p < 0.05$, $df = 227$; critical $t = 1.97$

The result of the analysis on table 5 for between schools revealed that the calculated t-value of 5.32 was higher than the critical t-value of 1.97 at a 0.05 level of significance with 227 degrees of freedom. So, the null hypothesis was rejected and alternative retained. This was an indication that there was a significant impact of programme duration on student critical thinking in nursing schools in the Centre Region of Cameroon.

Since there was a significant impact of programme duration on student CT in nursing schools in the Centre Region of Cameroon, a further examination of the influence revealed that the mean value of LONG (UAC) (m=8.10) was higher than the mean value of SHORT (UCAC) (m=5.87). Therefore, students in UAC who were offered a more extended programme exhibited better CT skills than those in UCAC who were offered a shorter programme duration.

CONCLUSION

In many universities in the world, admission into the bachelor degree programme in nursing differentiates between high school leavers and holders of diploma in nursing. This research evidenced that there is a significant impact of entry qualification in the bachelor degree curriculum in nursing schools in the Centre Region of Cameroon on student CT competence. In fact, the findings stress that students with previous clinical experience (admitted with a diploma in nursing) significantly outperformed students without previous clinical experience (admitted with baccalauréat). Besides, research studies maintained the idea that, as concerns CT, nursing students with low scores on pre-tests improved on post-tests; and vice versa (Magnussen et al., 2000). In

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addition, Rogal and Young (2008) suspected that high scores at pre-test; that is, a higher qualification might be responsible for no significant change or even decrease in CT post-test scores. Though these studies revealed a significant effect of entry qualification on nurse student CT development, they differ in design with the current research that did not test student CT skills before and after some intervention. Moreover, these studies relied on student CT level as entry qualification, whereas the current study relied on student admission requirements, understood in the sense of high school diploma (no experience in nursing) and a diploma in nursing (experience in nursing). So, to clarify this effect of clinical experience on student CT competence, the researcher suggests that more detailed research (experimental) be carried out on this matter.

Equally, the current study revealed that there is a significant impact of the duration of the bachelor degree curriculum in nursing schools in the Centre Region of Cameroon on student CT competence. Today, throughout the world, there are too many formats of bachelor degree as concerns programme duration. Since CT is recognised to be a critical competence for nurses, it becomes crucial that curriculum designers in nursing seek evidence that the programme meets the requirements for student CT ability. All over the world, the direct nursing bachelor programme (admission from high school diploma) lasts either three years (short) or four years (long). As regards the indirect nursing bachelor degree programme, it lasts from two semesters (short) to four semesters (long).

Many previous studies took interest in comparing CT scores of short and long programme students. For instance, Brown et al. (2001) compared CT scores of traditional students (long) and registered to bachelor degree nursing (short, with clinical experience) students and accelerated students (short without clinical experience). They found a significant increase in traditional (long) and registered to bachelor nursing students. They noted no significant improvement with accelerated students (short). Consequently, it can be concluded that students' clinical experience certainly affects their CT performances. The same idea of programme duration affecting the development of nursing students CT skills was exhibited by Shin et al. (2006) in a longitudinal study when they surveyed associate degree students (short programme), bachelor degree students (long programme) and registered to bachelor students (short programme). They found that long programme students significantly increased CT skills by academic year, compared to the short programme students. In fact, for CT to be exhibited by a student, it needs a long training period. Thus, Daly (2001) holds that 18 months period is too short to develop CT skills. More so, the findings of the current study are confirmed by Shin et al. (2006) who evidenced that bachelor degree students (long programme) significantly scored higher compared to associate degree students (short programme). But further studies must pay attention on other variables that can affect nurse students CT skills including effective use of active teaching techniques, effective use of formative evaluation, appropriate articulation and sequencing of content within the programme.

References

1. Adebajo, 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. Adeleke, A. O. (2010). *The challenges of best practices and standards in Nursing in Nigeria*. Igbinedion University Press Ltd.
3. American Association of Colleges of Nursing. (2008). *The essentials of Baccalaureate Education for Professional Nursing Practice*. Retrieved in July 2018, from <http://www.aacn.nche.edu/education-resources/BaccEssentials08.pdf>
4. American Nurses Association (ANA). (2010). *Nursing: scope and standards of practice* (2nd ed). Md ANA.
5. Ayandiran, E. O., Irinoye, O. O., Faronbi, O. J. & Mtshali, N. G. (2013). Education reforms in

<https://cejsr.academicjournal.io>

Nigeria: How responsive is the nursing profession? *International Journal of Nursing Education Scholarship*, 10(1), 1-8.

6. Bandman, E.L. & Bandman, B. (1995). *Critical thinking in nursing*. (2nd ed.). Appleton & Lange.
7. Black, B. P. (2014). *Professional Nursing: Concepts & Challenges*. MO Saunders & Elsevier.
8. Boychuk, J. E. (2003). Critical thinking perceptions of newly graduated female baccalaureate nurses. *Journal of Nursing Education*, 42 (1), 14-27.
9. Brown, J. M., Alverson, E. M., & Pepa, C. A. (2001). The influence of a baccalaureate program on traditional, Rn-BSn, and accelerated students' critical thinking abilities. *Holistic Nursing Practice*, 15(3), 4-8.
10. Chan, S. & Wong, F. (1999). Development of basic nursing education in China and Hong Kong. *Journal of Advanced Nursing*, 29, 1300-1307.
11. Daly, W. (2001). The development of an alternative method in the assessment of critical thinking an outcome of nursing education. *Journal of Advanced Nursing*, 36(1), 120-130.
12. Décision N°023/D/OPMS/P/SG du 16 Mars 2022 relative à l'inscription des titulaires de Licence en Sciences de la santé options sciences infirmières, sage-femme et technicien médico-sanitaire au tableau de l'Ordre
13. Directive 2013/55/EU of the European Parliament and of the Council of 20 November 2013 amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation (EU) No 1024/2012 on administrative cooperation through the Internal Market Information System.
14. Ehlers, V. J. (2002). Nursing education in the Republic of South Africa. *Nurse Educator*, 27(50), 207-209.
15. Fero, L. J., O'Donnel, J. M., Zullo, T. G., DeVito D. A., Kitutu, J., Samosky, J. T., & Hoffman, L. A. (2010). Critical thinking skills in nursing students: comparison of simulated-based performance with metrics. *Journal of Advanced Nursing*, 66(10), 2182-2193.
16. Global knowledge exchange network. (2009). *An overview of education and training requirements for global health care professional nursing*. Retrieved in 18 June 2018, from http://gken.org/Docs/Workforce/Physician%20Educ%20Reqs_FINAL%20102609.pdf
17. Hong, Y. S. & Yatsushiro, R. (2003). Nursing education in China in transition. *Journal of Oita Nursing and Health Sciences*, 4, 41-47.
18. Howanitz, P., Valenstein, P. & Fine, G. (2000). Employee competence and performance-based assessment. *Archives of Pathology & Laboratory Medicine*, 124 (2), 195-202.
19. Kaddoura, M. A. (2010). New Graduate nurses' Perceptions of the Effects of Clinical Simulation on Their Critical Thinking, Learning, and Confidence. *The Journal of Continuing Education in Nursing*, 41(11), 506-516.
20. Kataoka-Kataoka-Yahiro, M. & Saylor, C. (1994). A critical thinking model for nursing judgment. *Journal of Nursing Education*, 33(8), 351-356.
21. 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.
22. Magnussen, L., Ishida, D. & Itano, J. (2000). The impact of the use of inquiry-based learning as a teaching methodology on the development of critical thinking. *Journal of Nursing Education*, 39(8), 360-364.
23. Marchigiano, G., Eduljee, N. & Harvey, K. (2011). Developing critical thinking skills from clinical assignments: a pilot study on nursing students' self-reported perceptions. *Journal of Nursing Management*, 19(1), 143-152.

<https://cejsr.academicjournal.io>

24. McMullen, M. & McMullen, W. F. (2009). Examining Patterns of Change in the Critical Thinking Skills of Graduate Nursing Students. *Journal of Nursing Education*, 48(6), 310-318.
25. Miller, M. A. & Malcom, N. S. (1990). Critical thinking in the nursing curriculum. *Nurse Health Care*, 11(2), 67-73.
26. Mussallem, H. K. (1965). *Nursing education in Canada*. Queens' Printer.
27. National Observatory for Human Resources for Health Cameroon, NOHRHC. (2010). *Cameroon: analysis of human resource situation for health Ministry of Public Health*. Retrieved on 29th June 2018 from [http://www.cm-minsantedrh.com/site/index.php /en/offre-deformation/2013-03-25-13-49-11](http://www.cm-minsantedrh.com/site/index.php/en/offre-deformation/2013-03-25-13-49-11).
28. Nelms, T. (1991). Has the curriculum revolution revolutionized the definitions of curriculum? *Journal of Nursing Education*, 30(1), 5-8.
29. Nkwati, M. M. (2016). *Nurse Education in Cameroon: a grounded analysis on seizing the opportunity of the moment*. (Published PhD Thesis). School of Health and Human Sciences, University of Essex.
30. Oguisso, T. & De Freitas, G. F. (2015). Brazilian nursing history on the shoulders of giants. *International Nursing Review*, 62(1), 75-81.
31. Pringle, D. (2004). *Examining the causes of attrition from schools of nursing in Canada*. Office of Nursing Policy.
32. Pringle, D., Green, L. & Johnson, S. (2004). *Building the future: an integrated strategy for nursing human resources in Canada*. The Nursing Sector Study Corporation.
33. Rogal, S. M. & Young, J. (2008). Exploring Critical Thinking in Critical Care nursing Education: A Pilot Study. *Journal of Continuing Education in Nursing*, 39(1), 28-33.
34. Royal College of Nursing, Australia (RCNA). (1997). *Position statements: Quality in nursing practice*. Australia: RCNA.
35. 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.
36. Schaeffer, B. K. & Rubenfeld, M. G. (2000). A consensus statement on critical thinking in nursing. *Journal of Nursing Education*, 39(8), 352-359.
37. Schaeffer, B. K. & Rubenfeld, M. G. (2000). A consensus statement on critical thinking in nursing. *Journal of Nursing Education*, 39(8), 352-359.
38. Schank, M. (1990). Wanted: nurses with critical thinking skills. *Journal of Continuing Education*, 21(2), 86-89.
39. Shin, K. R., Lee, J. H., Ha, J. Y. & Kim, K. H. (2006). Critical Thinking Dispositions in baccalaureate nursing students. *Journal of Advanced Nursing*, 56(2), 182-189.
40. Silva, B. R. & Baptista, S. S. O. (2007). Movimento de expansão dos Cursos Superiores de Enfermagem na Região Norte do Brasil. *Rev Enferm*, 15(4), 515-200.
41. Smith, D. R. & Tang, S. (2004). Nursing in China: Historical development, current issues and future challenges. *Oita Care Research*, 5(2), 16-20.
42. Staib, S. (2003). Teaching and measuring critical thinking. *Journal of Nursing Education*, 42(11), 498-508.