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GHANAIAN NURSING FACULTY'S PERCEPTION OF CRITICAL THINKING

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Name: Christian Makafui Boso

Signature: …… Date: ……

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Name: Dr Mate Siakwa

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ABSTRACT

The ability to critically evaluate information for the purpose of rendering healthcare is a prerequisite for modern nurses in this complex and changing healthcare environment. The nursing faculty's perception influences the utilization of critical thinking strategies. The purpose of this study was to assess nursing faculty's perception of critical thinking. A cross sectional descriptive study with cluster sampling technique was used to assess the perception of 106 nurse educators from diploma and degree nursing programs in Ghana. Self-reporting questionnaire was used as the tool for data collection. The results revealed that majority (95.3%) of nurse educators could not provide a complete definition of critical thinking. However, the majority of nurse educators had positive perceptions of critical thinking. Nurse educators in universities had more positive perception of critical thinking than those in the Nurses' Training Colleges (p=0.007). Course structure and materials, lack of institutional framework, students' characteristics, time limitations, faculty limitations, and desire for grades were identified as barriers to the promotion of critical thinking. The results suggested that the current nursing programs are not preparing nurses for necessary skills for the complex health care environment. Curriculum review with focus on course content and design as related to critical thinking is required.

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DEDICATION

To my wife, children, and mother.

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LIST OF ACRONYMS

CCTDI	California Critical Thinking Disposition Inventory
CCTST	California Critical Thinking Skills Test
CT	Critical Thinking
LEP	Learning Environment Preferences
NLN	National League for Nursing
NMC	Nursing and Midwifery Council of Ghana
NTC	Nurses' Training Colleges
QRN	Qualified Registered Nursing
SRN	State Registered Nurses

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CHAPTER ONE

INTRODUCTION

The chapter covered the introduction to the research report. The chapter was organized into eleven sections. These include background to the study, statement of the problem, purpose of the study, research questions, and significance of the study. Other sections include assumptions, delimitation, limitation, definition of terms, and organization of the report.

Background to the Study

The ability to critically evaluate information for the purpose of rendering healthcare is a prerequisite for modern nursing in this complex and changing healthcare environment (Toofany, 2008). National League for Nursing (NLN, 2006) in United State of America recognized critical thinking as a vital skill for practicing nurses. Nurses employ critical thinking in their practice every day. A high level of critical thinking disposition and critical thinking skills are required to care for patients/clients with similar health care needs. Patients react to needs in different ways. Therefore nurses are expected to draw on holistic nursing knowledge base to consider each incident in order to render personalized and efficient nursing care rather than merely complying with tradition.

The responsibility of the faculty in helping foster critical thinking is vital (Twibell, Ryan, & Hermiz, 2005). As a student progresses through a program, it is the responsibility of the nurse faculty to assist in fostering critical thinking skills

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in the student (Billings & Halstead, 2009). Carlson-Catalano (1992) asserted that traditional curricula do not empower nurses. She recommended an empowering strategy of professional nursing practice through the acknowledgement of students as important members of the profession. She suggested the use of nursing analysis, change actions, cordiality, and funding support as tools for nurses' empowerment. Additionally, she contended that the only way to accomplish empowerment is for nurse educators to implement the philosophy of critical thinking as the basis for practice.

Faculty needs to reconsider their philosophy of teaching in order to develop critical thinking disposition and skills in students. The National League for Nursing (NLN, 2003) of United State of America recommended that nursing institutions should implement a learner-centered philosophy in teaching for optimal student learning. If nurse educators believed that learner-centered teaching philosophy was beneficial, they would readily implement changes to reflect their belief (Colley, 2012). Learner-centered approaches lead to accountability and active learning which result in the demonstration of significant levels of achievement than students instructed with traditional educational strategies (Doyle, 2008). However, studies show that most nurse educators persist in using traditional approaches in teaching (Brown, Kirkpatrick, Greer, Matthias, & Swanson, 2009). They are usually comfortable with the traditional lecture method and find it challenging adjusting to alternative instructional formats (Candela, Dalley, & Benzel-Lindley, 2006). Many educators do not have time to acquire skill regarding new approaches to teaching and preparing materials for

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use in learner-centered classes (Colley, 2012). In addition, student resistance to learner-centered approaches to teaching may be apparent (Colley, 2012). These factors may hinder the introduction of a learner-centered philosophy into nursing programs.

The educators' role must be to facilitate purposeful and optimal learning experiences (Freeman, Wright, & Lindqvist, 2010) rather than merely giving information. Communicating only facts to students is no more a desired option because with time, many facts become unfounded (Jones & Brown, 1991). A faculty dominated classroom does not create the suitable learning environment to develop critical thinking. The teacher and students must share in the responsibility of creating a learning environment conducive for students' empowerment (DeYoung, 2009). The teacher is responsible for creating an environment that promotes critical thinking (DeYoung, 2009). Creedy, Horsfall, and Hand (1992) suggested that students can be empowered if their contributions are recognized, opinions are encouraged, mistakes are corrected objectively without humiliating them, and risk taking is permitted.

To implement the principles of critical thinking, the learning environment must be altered. Active learning may provide a frightening situation to students. The teacher must create a nonthreatening environment that permits students to explore the learning materials, commit errors, probe the content, relate with past experiences, and convert the content into personal knowledge (McCabe, 1992). To create a conducive learning environment, the following strategies are suggested: faculty should share with the students their philosophy of teaching to

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enhance critical thinking (Billings & Halstead, 2009); establish a sense of connection between faculty and students (Billings & Halstead, 2009); make students aware that there are conflicting ideas of concepts; and modify physical characteristics of classroom to ensure eye contact (Billings & Halstead, 2009). MacIntosh (1995) suggested the rearrangement of chairs in small or large circles. Transmitting information through rote lecture does not guarantee learning.

In order to guarantee that educators are fostering critical thinking skills among students, some specific teaching methods have been suggested. These include reflective analysis, concept mapping, problem-based learning, Socratic questioning, role play, simulation, and seminar. These strategies promote active learning in the teaching and learning process and highlight the concepts of critical thinking and adult learning (Billings & Halstead, 2009).

The Concept of critical thinking has been highlighted so much in educational literature (Graffam, 2007). However, many educators have not embraced it as a vital value, and may not comprehend the concept as constructed overtime by authors persuaded of its substance (Billings & Halstead, 2009). For example, Barnes (1983, as cited in Billings & Halstead, 2009) reported that faculty posed questions that were at the lowest level of cognitive skills. She discovered that faculty used lecturing most often with questions that are at low level of cognitive skills; and they followed with more lecturing. Similarly, Braxton and Nordvall (1985, as cited in Billings & Halstead, 2009) scrutinized examination questions in 83 colleges. They discovered that less than 0.5% of

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questions may be categorized as requiring the evaluation skills to answers — showing a deficiency in a very vital critical thinking skill.

Several reasons may account for the inability of educators to make critical thinking an essential ethic in education. One reason is that many educators themselves did not witness the critical thinking strategies as they progress through their own educational program. Rather, they were modeled after lecturers who were dispensers of contents. Therefore, they teach what they are familiar with. Another reason is that most faculty members have not been educated specifically in critical thinking skills. This leads to lack of confidence in making a change in their teaching methods. Other reasons include performance evaluation that reward students who memorized contents; educators not committed in reading critical thinking literature; lack of consensus on what critical thinking mean; too much workload, and class sizes that are large; textbooks that do not encourage critical thinking but are designed for content coverage; and reward system for faculty that does not emphasis critical thinking.

In Ghana, there have been reports of poor work ethics that are exhibited by nurses. Some of these poor work ethics included nurses shouting at patients, talking on the cell phone, and browsing the internet (Adjatey, 2013). The complaints of poor attitudes and work ethics exhibited by nurses in Ghana calls into question the kind of education being offered by nursing programs. This clearly indicates that there is something wrong with nursing education in Ghana. Nurses who possess critical thinking skills appreciate the consequences of their actions and inaction. Ghanaian nursing faculty's perception of critical thinking is

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not known. Therefore, this study assessed the nursing faculty's perception of critical thinking.

Statement of the Problem

Rapid developments and changes are occurring in the information age in which we live. Consequently, the accumulation of knowledge is rapidly increasing. Nurses need to utilize their intellectual ability, and theoretical and experiential knowledge in applying critical thinking to appropriate healthcare situations (Jarvis, 2008).

Critical thinking is crucial to nursing care. Most graduates of nursing programs are unable to meet entry-level requirements for making clinical decisions (del Bueno, 2005). Nurse educators have implemented a variety of teaching methods to foster critical thinking with varied outcomes (Adams, 1999). Programs have typically focused on mastering content instead of relating critical thinking to circumstances (del Bueno, 2005; Fero, Witsberger, Wesmiller, Zullo, & Hoffman, 2009; Walsh & Seldomridge, 2006). Nurse educators need to utilize educational strategies that foster the development of critical thinking to address students' learning needs.

Nurse educators are required to assist students in addressing current and future health care challenges. Contemporary nursing programs tend to give guidelines that highlight critical thinking as necessary to address the expectations and needs of a diversified society (Walsh & Seldomridge, 2006). Competent and safe nursing practice results from nursing faculty creating learning environments where students are active participants (Rothgeb, 2008).

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In Ghana, some indicators that have been identified point to the fact that critical thinking is not being exhibited by nurses in caring for their patients. The public complains of negligence, poor work ethics, and violence by nurses (Adjatey, 2013; Adofo, 2010). The emphasis of nursing on tasks is partly blamed for this state of affair. Students are still taught to follow the functional model of nursing care. This model supports a situation in which nursing service is still task-oriented. This is a major obstacle to the development of critical thinking skills in students.

The Nursing and Midwifery Council of Ghana (NMC, 2007) has incorporated critical thinking into its curricula with one of the program outcomes being to foster critical thinking skills in nurses in Ghana. However, challenges in the nursing educational system may erode the attempt to develop critical thinking skills of nursing students in Ghana. Some of these challenges include: limited educational resources; lack of access of faculty members to online information; under-stocked libraries; too few and outdated textbooks; few journals; poorly resourced clinical laboratories; and unavailability of disposable nursing supplies for teaching (Talley, 2006). These challenges could potentially serve as obstacles to the promotion of critical thinking skills. Also, there is no specific educational program on critical thinking for nurse educators. Yet, the educator is the critical element for critical thinking development. Meanwhile, the literature reveals that educators have challenges teaching critical thinking skills (Shell, 2001). Additionally, objective data on how the critical thinking is perceived and fostered by faculty is lacking in the field of nursing in Ghana.

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This identified gap in the literature indicated a need for the assessment of the nursing faculty's perception of critical thinking and identification of instructional strategies that have been adopted to foster critical thinking.

Purpose of the Study

The purpose of this study was to assess the nursing faculty's perception of critical thinking.

Specific Objectives

The specific objectives of this study were:

1. To assess the perception of nursing faculty about critical thinking.
2. To identify the instructional strategies used by nursing faculty to develop critical thinking in their students.
3. To identify barriers that hinder nursing faculty from fostering critical thinking in students.
4. To compare perceptions of critical thinking between nurse faculty of Nurses' Training Colleges (NTCs) and public universities.

Research Questions

To accomplish the objectives of this study the following research questions were addressed:

1. What is the perception of nursing faculty about critical thinking?
2. What instructional strategies do nursing faculty use to promote the development of critical thinking in their students?
3. What are the barriers that hinder nursing faculty from fostering critical thinking in students?

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4. Is there a significant difference in perceptions of critical thinking between nursing faculty of NTCs and public universities?

Significance of the Study

Studying about the perception of educators will help to comprehend how critical thinking can be fostered in the classroom. Studies have revealed that thoughts and beliefs of educators impact practices in the classroom. The need to study educators' perception in the view of promoting critical thinking is therefore apparent. This study sought to find out the nurse educators' perception of critical thinking. Studying nurse educators' perceptions of critical thinking is worthwhile from a variety of viewpoints.

First, it may have implications for Nursing and Midwifery Council of Ghana (NMC) and nursing educational institutions in terms of policy making regarding curriculum decisions, and textbook selections. Second, the study may provide recommendations for universities and other nursing educational institutions in terms of professional development offered for nurse educators prior to employment. Third, it may have implication for in-service training, monitoring, and evaluation in order to improve the quality of teaching and learning, and standards setting. Furthermore, it may contribute to the limited literature especially in Ghana on nurse faculty's perceptions of critical thinking. It will also contribute in identifying the barriers to critical thinking and teaching strategies employed by nurse educators to foster critical thinking development in students. Additionally, the findings from the study may assist superiors, curriculum

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designers, policy makers, and educators by providing insight into the subject of nurse educators' perceptions of critical thinking.

Nursing faculty who play a central role in nursing education will find the basis to examine their own instructional strategies. Finally, it may inspire researchers to undertake further research by providing insight from a different context.

Assumptions

For the purpose of this study, it is assumed:

1. Critical thinking is essential for nursing education and nursing practice.
2. Nursing faculty's educational philosophy guides their perception of teaching strategies that will effectively develop critical thinking.
3. Critical thinking enables novice nurses to enter clinical practice with ability to make decisions in patient care situations that promote positive outcomes.
4. Nursing faculty's teaching strategies are related to the development of critical thinking.
5. Nursing faculty create learning environments that promote critical thinking.
6. Critical thinking is appreciated more by nursing faculty in universities than those in NTCs.

Delimitation

For the purpose of this study, the following delimitation was applied:

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The participants constituted of only current faculty with full-time appointment to universities and NTCs in seven southern regions of Ghana at the time of the study.

Limitations

For the purpose of this study, the study had some limitations. The following limitations were identified:

1. The data collection was from one point in time (cross-sectional survey design). The cross-sectional design produced data about nurse educators at a specific time in their teaching career. A cross-sectional design can be generalized to other population but is not as strong as longitudinal in showing the entire process as nurse educators develop their educational philosophy.
2. The instrument employed in collecting data was self-reported perceptions of nurse educators. Therefore, the tool did not directly measure the actual critical thinking skills in implementing critical thinking strategies in the teaching. Additional limitation of self-reporting is that participants might not be knowledgeable on the subject. Therefore, they may choose not to answer questions because they do not understand a question or for other reasons.
3. Only nursing training schools offering general nursing programs at both diploma and undergraduate programs from southern part of Ghana were included in this study. Accordingly, the findings can only be generalized to this population.

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4. The response rate of 65% limits the generalization of this research. This stems from the fact that nonrespondents could possess perceptions that contrast those who responded to the survey.

Definitions of Terms

Critical thinking: For the purpose of this study, Scheffer and Rubenfeld's (2000) definition was used. Their definition was as a result of a Delphi study they conducted. A team of nursing experts around the globe was assembled to brainstorm on critical thinking and nursing. The findings of the study classified as "habits of mind" (affective) skill and cognitive skill with their associated characterizations to explain critical thinking. The definitions of the "habits of mind" for critical thinking in nursing consisted: "confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance, and reflection" (Scheffer & Rubenfeld, 2000, p. 357). While the requisites definitions for the cognitive aspect included: "analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting, and transforming knowledge" (Scheffer & Rubenfeld, 2000, p. 357). For the purpose of this study, nurse educators' definition should contain attributes that recognizes the two aspects of critical thinking (affective and cognitive).

Nursing faculty refers to individuals who have current teaching appointments with nursing educational institutions. The term nursing faculty is used interchangeably with nurse educator.

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Teaching strategy is an instructional method used by nursing faculty based on their perception that it effectively develops the learning outcome. The terms instructional strategies, best practices of instruction, and teaching strategies are used interchangeably.

Perception is an individual's viewpoint or opinion of belief of something. In this study, it is the faculty's opinion or viewpoint of belief of critical thinking.

Barriers to critical thinking are factors that hinder the promotion of the development of critical thinking. In this study, barriers are factors that hinder the promotion of the development of critical thinking in nursing students in Ghanaian nursing educational institutions.

Organization of the Report

This report was organized into five main chapters. The first chapter focussed on the introduction of the study. The second chapter dealt with the review of relevant literature. Chapter three addressed the methodology of the study. Chapter four concentrated on the analysis of the data and finding. The last chapter looked at summary, conclusion of the study and recommendations.

Summary

The introductory section of this report established the widespread recognition of critical thinking as a vital component of educating professional nurses. Furthermore, the role of the nurse faculty in critical thinking development was established. This role is largely affected by the faculty's perception of critical thinking. Therefore, the purpose of this study was to assess the nursing faculty's perception of critical thinking. Four research questions were stated, indicating the

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purpose of assessing the perception of critical thinking, teaching strategies that enhance critical thinking, barriers to critical thinking, and differences of perception of critical thinking between faculty in Nurses' Training Colleges and universities. Additionally, this introductory chapter identified limitations and delimitations of the study. Also, definitions of important terms used in this study were presented.

The next chapter reviewed relevant literature for the study. Theoretical background of critical thinking, teaching methods that foster critical thinking, barriers to the promotion of critical thinking, and other relevant issues were discussed.

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CHAPTER TWO

LITERATURE REVIEW

The literature review looked at quite a number of pertinent areas of critical thinking inquiries. The chapter is separated into the following segments: nursing education in Ghana; historical overview of critical thinking; definitions of critical thinking; theoretical background of critical thinking; critical thinking disposition; critical thinking: discipline specific or neutral; critical thinking in nursing; teaching strategies and methods used to promote critical thinking; barriers to the promotion of critical thinking; Simpson and Courtney's conceptual framework; conceptual framework used for the study; and summary of the literature. This review also included current empirical studies on teaching strategies that enhance critical thinking skills in nursing as well as the barriers to the promotion of critical thinking development in students.

Nursing Education in Ghana

Nursing education in Ghana has undergone various transformations. It has moved from the training of male orderlies during pre-independent era to the current preparation of post-graduate nurses to take up leadership positions in education, administration, and research. In reviewing the evolution of nursing education in Ghana from1957 to1970, Opare and Mill (2000) contended that the transformations took place in a socio-economic and political environment with their associated challenges. Ghana was a pacesetter in nursing education having

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been the first country in Sub-Saharan Africa to gain independence (Opare & Mill, 2000). In 1963, University of Ghana was the first university in tropical Africa to introduce diploma nursing program to prepare nursing tutors (Opare & Mill, 2000).

During the pre-independent era, the health care system was fashioned to provide health care to the colonial masters, civil servants, and African soldiers. Later, the medical doctors trained male orderlies to assist them expand their services to the indigenous people. Only males were trained to render nursing care because the existing tradition at that time did not allow young women to provide nursing care to nonrelatives. The establishment of nursing school in Kumasi in 1945 by Isobel Hutton for State Registered Nurses (SRN) saw a shift from recruiting males (Boahene, 1985, as cited in Opare & Mill, 2000; Osei-Boateng, 1992, as cited in Opare & Mill, 2000). Only females were eligible for admission to the nursing program. Qualified Registered Nursing (QRN) was concurrently introduced (Opare & Mill, 2000).

The British nursing education system continued to dominate until the policy of Africanization was introduced after independence. The policy encouraged Ghanaian nurses to progress to positions of decision-making. This is because the White sisters who occupied senior positions in education did not renew their appointment due to the Africanization policy. The British system had a heavy influence on the nursing educational system in Ghana. However, the British influence on nursing education in Ghana received harsh criticism. For example, Chittick (1965, as cited in Opare & Mill, 2000) argued that the kind of

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relation that existed between the British system and Ghanaian nursing education accounted for the lack of flexibility, scope, and impetus that would lead to a system of nursing service and education to meet the unique health needs of Ghana. Additionally, the British system encouraged rote learning (Chittick, 1965, as cited in Opare & Mill, 2000). These assertions suggested some of the weaknesses that have existed in our nursing educational system to date. Similarly, nursing education and services lacked the internal dynamic required for the necessary transformation.

Currently, there are several public funded and private nursing programs in Ghana offering undergraduate programs. However, the emphasis of nursing on tasks has not changed. Students are still taught to follow the functional model of nursing care. This model supports a situation in which nursing service is still task-oriented. This is a major obstacle to the development of critical thinking skills in students. In addition, undergraduate nursing programs are not encouraged. Talley (2006) asserted that the hospital-based diploma model is the most frequently used in nursing education in Ghana. Similarly, postgraduate nursing programs are limited.

Another challenge identified in nursing education in Ghana is lack of resources. Some of these challenges include lack of infrastructure, large class sizes, and shortage of nurse educators (Bell, Rominski, Bam, Donkor, & Lori, 2013; Talley, 2006).

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Historical Background of Critical Thinking

Critical thinking theory originated from ancient Greek philosophers who sought to approach truism through the avenue of critical discussion (Yildirim & Özkahraman, 2011). Historically, the concept of critical thinking has been attributed to the ancient scholars such as Socrates, Plato and Aristotle as far back as 500 BC. It was first traced to the teaching and practice of Socrates who formulated a method of questioning that probed issues and knowledge held by people. Socrates asserted that one cannot rely on facts emphasized by people in positions of influence to develop knowledge that is sound and insightful. He established that people might be confused and highly irrational even though they might hold high positions and wield power. The fundamental philosophy was simply through critical discussion and criticism that the truth could be discovered (Norris & Phillips, 1987, as cited in Yildirim & Özkahraman, 2011). Socrates established the significance of accepting ideas as worthy of belief only after examining and questioning the ideas profoundly. Socratic Method of inquiry is what is commonly called "the Socratic questioning" which is said to be the most effective critical thinking educational method (Foundation for Critical Thinking, 2013).

The persistent widespread use of Socratic questioning in academia from pre-schools to tertiary institutions attests to the influence of Socrates (Foundation for Critical Thinking (2013). Plato, Aristotle, and other thinkers followed the philosophy of Socrates. They stressed the fact that people could isolate and decipher the realism from the misrepresentation only if their minds were trained

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and that the human mind was competent and completely willing to distort received stimuli.

Most successive great thinkers were influenced by the way the Greek searched for in-depth meanings, associations, and realisms based on orderly thought processes (Foundation for Critical Thinking, 2013). There was no evidence of the influence of critical thinkers until the middle age when persons like Thomas Aquinas surfaced. The rubric of critical thinking was justified by Aquinas. His thinking was regularly and systematically examined by anticipating, considering, and answering every probable criticism of his thoughts that he might envision. In going through this process, he instituted the acknowledgment of evidence-based practice in learning as well as for self-corrected and self-regulated thoughts through an orderly cross-examination (Foundation for Critical Thinking, 2013).

The Englishman, Francis Bacon, in the sixteenth century also held that people misapply their minds. He was a strong advocate for evidence and intense observation through experience on which reasoning must be based. The foundation for modern science with emphasis on the critical part of verification is generally attributed to him (Foundation for Critical Thinking, 2013).

Other great thinkers played various roles in expanding the concept of critical thinking. Some of these thinkers include Rene Descartes (1596-1650), Sir Thomas Moore (proponent of new social Utopia), Robert Boyle (17th Century), and Sir Isaac Newton. Other contributors who emerged in the 19th century were

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Karl Marx, Charles Darwin, and Sigmund Freud. Others were William Graham Sumner, John Dewey, and Ludwig Wittgenstein (20th century).

The search for knowledge on the working of the mind is expected to continue perpetually. However, some familiar and vital trademarks run throughout from the time of Socrates till now. These include probing questions, demonstrable evidence-based reasoning, and the mind is not automatically in the position of regulating or correcting itself (Foundation for Critical Thinking, 2013). In addition, effective thinking depends on structures and processes that routinely undergo evaluation to ensure that reasoning has not been compromised. These processes go through constant analysis (Foundation for Critical Thinking, 2013).

Theoretical Background

The theory of critical thinking has two main approaches namely philosophy and psychology (Lewis & Smith, 1993); and a more recently recognized approach within the education field (Sternberg, 1986). The definitions of critical thinking that relate to these distinct academic disciplines mirror their individual concern. The different perspectives of critical thinking are further expounded in the subsequent paragraphs.

The philosophical approach

Some of the definitions of critical thinking that originate from the philosophical approach include

1. "critical thinking is reflective and reasonable thinking that is focused on deciding what to believe or do" (Ennis, 1985, p. 45);

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2. "…..the skills and propensity and skill to engage in an activity with reflective skepticism……" (McPeck, 1981, p. 8);
3. "critical thinking is skillful, responsible thinking that facilitates good judgment because it 1) relies upon criteria, 2) is self-correcting, and 3) is sensitive to context" (Lipman, 1988, p. 39);
4. "purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or conceptual considerations upon which that judgment is based" (Facione, 1990, p. 3);
5. "disciplined, self-directed thinking that exemplifies the perfections of thinking appropriate to a particular mode or domain of thought" (Paul, 1992, p. 9);
6. thinking that is goal-directed and purposive, "thinking aimed at forming a judgment," where the thinking itself meets standards of adequacy and accuracy (Bailin, Case, Coombs, & Daniels, 1999, p. 287); and
7. "judging in a reflective way what to do or what to believe" (Facione, 2000, p. 61).

The works of Socrates, Aristotle, Plato, and more recently, Matthew Lipman and Richard Paul have manifested the philosophical perspective to critical thinking (Lai, 2011). Unlike the cognitive psychological approach where critical thinking is looked at as actions and behaviors the critical thinker performs, the philosophical approach centers on the hypothetical person who thinks critically in relation to characteristics and qualities (Lewis & Smith, 1993; Thayer-Bacon,

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2000). Sternberg (1986) asserted that the philosophical approach sees the critical thinker as a perfect kind, focusing on what a person could do in the ideal situations. Therefore, Paul (1992) postulated for critical thinking from the viewpoint of "perfections of thought" (p. 9). In addition, the perspective of an ideal critical thinker is evident in the American Philosophical Association's Delphi study which described the critical thinker as someone who habitually probes, fair-minded, open-minded, flexible, information-seeking, values other perspectives, and is ready to reconsider his/her own judgment based on other viewpoints (Facione, 1990).

The philosophical perspective also emphasizes criteria for thinking critically. For example, Bailin (2002) defined critical thinking according to a set of standards of thinking. Further, this perspective encouraged the application of rules of reasoning which are formal (Lewis & Smith, 1993; Sternberg, 1986). The philosophical approach to defining critical thinking is not always consistent with reality and that is one of its significant limitations (Sternberg, 1986). As noted by Lai (2011), this school of thought on critical thinking might have less impact on the debate regarding real thought processes of individuals because of the doggedness of this approach of the ideal critical thinker and what individuals are capable of performing. Meanwhile, according to Raymond-Seniuk and Profetto-McGrath (2011), the philosophical definitions most often referred to that are non-nursing are that of Facione (1990), and Paul (1992).

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The cognitive psychological approach

Some common definitions of critical thinking that have reflected cognitive psychological perspective consist of:

1. "the mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts" (Sternberg, 1986, p. 3);
2. "the use of those cognitive skills or strategies that increase the probability of a desirable outcome" (Halpern, 1998, p. 450); and
3. "seeing both sides of an issue, being open to new evidence that disconfirms your ideas, reasoning dispassionately, demanding that claims be backed by evidence, deducing and inferring conclusions from available facts, solving problems, and so forth" (Willingham, 2007, p. 8).

There are two main aspects that distinguish cognitive psychological perspective of critical thinking from that of the philosophical approach (Lai, 2011). These are reflected in the view that (1) psychological perspective focuses on how people actually think against how they should think under normal circumstances (Sternberg, 1986); and (2) psychological perspective's definition looks at critical thinking according to the kinds of acts or conducts critical thinkers are able to perform (Lai, 2011). Lai argued that cognitive psychologists dwell on outcome of thought (behaviors or overt skills) such as scrutiny, judgment, and fine question formation because thought processes could not be observed. This contrasts the philosophical view that defines critical thinking according to the characteristics of the ideal critical thinker. Classically, the

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cognitive psychologists approach to describing critical thinking involved a listing of the critical thinkers' skills (Lewis & Smith, 1993).

Critics of the cognitive psychological perspective, mainly from the philosophers, have often challenged the cognitive psychologists' view of critical thinking as reductionist. That is limiting complicated issue of critical thinking involving combination of knowledge and abilities to a collection of distinct steps (Sternberg, 1986). Bailin (2002), a philosopher saw the attempt to reduce critical thinking to distinct steps or abilities as fallacy, and the behaviorist's attempt to define constructs in a manner that are straightforward apparent emanate from this elementary misconception . Proponents of the philosophical perspective argued that critical thinking's activities should not be confused with its component skills (Facione, 1990). Thus, critical thinking should not be looked at as merely the summation of its components (Van Gelder, 2005). In fact one could go through the steps or the procedures of critical thinking without really employing thoughts that are critical (Bailin, 2002).

The educational approach

Brookfield's (1987, as cited in Raymond-Seniuk & Profetto-McGrath, 2011) definition is referred to often in the educational field. Brookfield defined critical thinking as first, involving recognizing and challenging assumptions; second, challenging the significance of context; third imagining and exploring alternatives; and fourth employing reflective skepticism. These elements in Brookfield's definition of critical thinking demonstrated his view of critical as a process with emotive and rational perspectives. Likewise, Dewey (1933, as cited

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in Raymond-Seniuk & Profetto-McGrath, 2011) postulated that some disbelief in thought would cause people to reflect. The conflict in thought subsequently generates a cautious consideration of person's beliefs which results into re-establishment of beliefs supported on knowledge (Raymond-Seniuk & Profetto-McGrath, 2011).

Other renowned authors in the education field who have engaged in the critical thinking discussions include Benjamin Bloom and his associates. For educational instruction and evaluation of higher-order thinking, instructors commonly refer to the taxonomy they developed in 1956 for information processing skills (Lai, 2011). Kennedy, Fisher, and Ennis (1991) asserted that analysis, synthesis, and evaluation which are the three top stages of the taxonomy are often referred to as signifying critical thinking.

Unlike philosophical and the psychological traditions, Sternberg (1986) asserted that the strength of the educational perspective is that it is founded on long period of student learning observation and classroom experience. Nonetheless, some authors have criticized the vagueness of the educational perspective as a limitation. Compared to philosophy and psychology approaches, the education approach has not undergone vigorous testing (Sternberg, 1986). Additionally, challenges in using the taxonomy to help in teaching and evaluation exist because concepts in the taxonomy are deficient in clarity (Ennis, 1985; Sternberg).

There are aspects of critical thinking that the three approaches have consensus on when it comes to the definition of critical thinking. These areas of

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agreement include the exact abilities that classically go with the definition of critical thinking. These abilities consist of generalizing based on deductive or inductive reasoning (Facione, 1990; Paul, 1992; Willingham, 2007); assertions examination, proof, or arguments (Ennis, 1985; Facione, 1990; Halpern, 1998; Paul, 1992); evaluating (Case, 2005; Facione, 1990; Lipman, 1988); and problem solving or deciding on issues (Ennis, 1985; Halpern, 1998; Willingham, 2007).

Some other vital skills recognized as important to critical thinking comprise seeking clarity through posing and responding to queries (Ennis, 1985); defining terms (Ennis, 1985); recognitions of postulations (Ennis, 1985; Paul, 1992); explanation and interpretation (Facione, 1990); ability to reason verbally (Halpern, 1998); ability to predict (Tindal & Nolet, 1995); and recognizing the fact that there are different sides to a matter (Willingham, 2007).

Dispositions

According to Lai (2011) dispositions have been defined by different authors as "attitudes or habits of mind" (p. 10). For example, critical thinking dispositions have been defined as "consistent internal motivations to act toward or respond to persons, events, or circumstances in habitual, yet potentially malleable ways" (Facione, 2000, p. 64). The majority of authors of critical thinking support the fact that critical thinking also involves disposition in addition to the abilities the critical thinker must possess (Facione, 1990). Some early authors such as Ennis (1985) researching into critical thinking acknowledged the fact that the ability to think critically is separated from the disposition. Facione (2000) asserted that the view that skills of critical thinking are different entities from critical

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thinking dispositions seems to be supported by research. Pertinent dispositions essential to critical thinking identified by authors include: fair-mindedness (Facione, 1990); flexibility (Facione, 1990; Halpern, 1998); open-mindedness (Facione 1990, 2000; Halpern, 1998); seeking reason (Paul, 1992); being inquisitive (Facione, 1990, 2000); information seeking (Facione, 1990); and readiness to consider others' viewpoints (Facione, 1990).

Critical thinking: discipline specific or neutral

There are some other issues that concerns critical thinking. One of such issue is whether critical thinking is discipline specific or discipline general. Some authors who supported the discipline specific argument asserted that critical thinking must not be taught as separate course but rather embedded into all courses (Ennis, 1997). On the other hand, those who support critical thinking as general asserted that it should be taught as a separate course. Solon (2001, as cited in Thompson, 2011) asserted that when students are taught critical thinking as a separate course, their critical thinking skills improves better than when it is embedded. Ennis (1997) argued that there is a third approach for the teaching of critical thinking where it is taught as a separate course and also incorporated into other courses. Another issue of critical thinking is that it is believed to be natural and that it does not need to be taught. Paul and Elder (2007) identified one of the problems of fostering critical thinking is that it is considered as natural and that everybody thinks. They argued that if individual thoughts are not challenged, they are "biased, partial, distorted, uninformed, or down-right prejudiced" (Paul & Elder, 2007, p. 2).

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Critical Thinking in Nursing

Critical thinking that leads to clinical judgment is vital to nursing care (American Association of Colleges of Nursing, 2008; Hoffman, 2008; Vacek, 2009). How nurse educators think about the definition of critical thinking will affect how they assess students and implement strategies to foster critical thinking (DeYoung, 2009). In the past, learners have been helped to develop their critical thinking skills through clinical experiences and the use of classroom experiences (Anderson & Tredway, 2009; Hoffman, 2008).

Just as in many disciplines, critical thinking in nursing also lacks consensus. Allen, Rubenfeld and Scheffer (2004) asserted that the challenge in the promotion of critical thinking development in the clinical settings is as result of contradictory positions on a definition of critical thinking. Turner (2005) carried out a concept analysis of critical thinking in nursing literature to determine changes in the concept of critical thinking overtime. She reviewed relevant literature from 1981 to 2002 using three databases namely Cumulative Index of Nursing and Allied Health (CINAHL), MEDLINE, and EBSCO. The author stratified the references into two 11-years period (that is 1981-1991 and 1992-2002). Turner (2005) used a randomized sampling technique of references from each period to code for definitions, referents, attributes, antecedents, consequences of critical thinking, and surrogate terms. The search yielded 646 distinctive literature references including books, journal articles, dissertations, and editorials. Dissertations were deleted because some of them had been published in journals. Therefore including them would have led to overrepresentation.

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Commentaries, editorials, opinions, tips articles, and notes that lacked depth were also eliminated. Likewise, articles that could not be translated were deleted. A 10% sample (4 from first stratum and 45 from second stratum) was selected from the refined population of 492.

Turner (2005) asserted that in the first stratum most often used definitions were that of Matthews and Gaul (1979, as cited in Turner, 2005) or Watson and Glaser (1964, 1980, as cited in Turner, 2005). While many of those in second stratum (1992-2002) cited the American Philosophical Association's definition of critical thinking as reported in the consensus paper led by Facione (1990).

Attributes of critical thinking yielded many characteristics. The first stratum recorded 36 unique attributes of critical thinking. The attribute, judgment was the only attribute cited in three separate sources (7.5% of occurrence). Analysis and skepticism were cited in two separate sources (5% of occurrences). The fact that attributes have not appeared consistently during this period indicated in the literature suggested lack of maturity of critical thinking. In the second period or stratum 162 separate attributes of critical thinking were cited (401 occurrences). Attributes that were most frequently cited included analysis (23 occurrences); reasoning (15 occurrences); inference (14 occurrences); interpretation (11 occurrences); knowledge (10 occurrences); and open-mindedness, (10 occurrences). Majority of these attributes were also connected with Facione (1990) and Paul (1992) which were the most frequently cited definitions of critical thinking (Turner, 2005).

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Analysis was a stable attribute in the nursing literature. This is because it appeared in both stratum one and two (Turner, 2005). Meanwhile, reasoning was the second most frequently cited element in the second stratum and also appeared in the first stratum in 2.5 percent of occurrences. This made it a fairly stable element of critical thinking. The attributes interpretation, inference, open-mindedness, and knowledge were stable over both periods. Twenty-seven surrogate terms were identified which directly related to critical thinking. The following were most frequently used: decision making, diagnostic reasoning, nursing process, clinical judgment, clinical decision making, and problem solving. Three terms–decision making, problem solving, and nursing process were the only surrogate terms that appeared in the first stratum. The author therefore concluded that the concept of critical thinking had matured, and reflected in clearer definitions in the nursing literature. Nevertheless, antecedents and consequences are not well defined, and many consequences were similar to attributes and surrogate terms. She suggested further attention to boundary delineation within definitions of critical thinking.

Scheffer and Rubenfeld (2000) tried through a Delphi study to come out with consensus position on the definition of critical thinking in nursing. They classified the results into two categories–habits of mind (affective) and cognitive skills with their associated definitions to expound the process of critical thinking. The report identified the elements that constitute habits of mind as "confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance, and reflection" (Scheffer & Rubenfeld,

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2000, p. 357). On the other hand, the cognitive skills elements were identified as "analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting, and transforming knowledge" (Scheffer & Rubenfeld, 2000, p. 357). The authors highlighted that context and prior experiences with a situation was crucial when one is using critical thinking. Scheffer and Rubenfeld's (2000) definition positioned critical thinking as a fundamental aspect of nursing service and recognized that dispositions and skills are needed by the nurse to think critically. The highlighting of intuition, contextual perspective, and creativity as elements of critical thinking in nursing was the noticeable variation in this definition (Raymond-Seniuk & Profetto-McGrath, 2011). These elements which are considered more feminine concepts underscored the distinction between definitions formulated from inside nursing and those formulated outside nursing (Raymond-Seniuk & Profetto-McGrath, 2011).

Alfaro-Lefevre's (1999, as cited in DeYoung, 2009) definition is another definition of critical thinking that is often referred to in nursing. According to her, critical thinking and clinical judgment in nursing is "purposeful, informed, outcome-directed (results oriented) thinking … [that] requires knowledge, skills, and experience …. [and helps one] constantly reevaluating, self-correcting …, and striv[e] to improve" (p. 9). The above definition of critical thinking provides a complete description of the elements encompassing critical thinking from a nursing standpoint (Raymond-Seniuk & Profetto-McGrath, 2011). Raymond-Seniuk and Profetto-McGrath (2011) asserted that there was a powerful

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association between critical thinking and clinical judgment in Alfaro-Lefevre's definition which was not apparent in other definitions.

Meanwhile, studies on nurse educators on the definition of critical thinking yielded several themes. For example, a study by Walthew (2004) on the perception held by faculty on critical thinking was descriptive, interpretive approach. The purpose of the study was to explore the perceptions of critical thinking by nurse educators in a large nursing school in New Zealand. Individualized semi-structured interview was used as the data collection tool from a sample of 12 nurse faculty out of a potential 18 respondents. All the respondents had at least 10 years teaching experiences.

After analyzing the data, the author identified four themes of critical thinking. The ability to seek information, relating theory to practice, and problem solving was the first theme. One of the interviewees discussed the ability to link theory to practice as a process that develops as students' knowledge increases with increased experience. Many of the nurse educators regarded the nursing process to be closely associated with critical thinking. However, some disagreed with this position and considered the nursing process to inhibit critical thinking by stifling creativity due to the linear-type thinking it encourages (Walthew, 2004).

Disposition and attitude of the students was the second theme recognized by the nurse educators. The learner must have a natural character trait to think critically instead of a skill that developed over a period (Walthew, 2004). The third theme that emerged was hunch and subjective knowledge component of critical thinking (Walthew, 2004). According to Walthew (2004), this viewpoint

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contradicted the conventional view of critical thinking that realism can only be truthfully represented by being unbiased, regular, and not capricious. The fourth theme reported by the nurse educators was context and thinking based on relations. One could be said to be a critical thinker only if he/she has considered other viewpoints and based on that take a decision. Complexity of critical thinking was strengthened through this study despite the fact that some clarity of the concept was offered (DeYoung, 2009).

Chabeli and Muller (2004) conducted a qualitative study in South Africa to explore and describe the perceptions of nurse faculty with regard to how reflective thinking can be fostered in clinical teaching. Twelve nurse faculty with a minimum of 10 years' experience in teaching in the clinical setting took part in the study using a focused group discussion. The key theme that emerged from the study was "empowering learners to use reflective thinking skills" (Chabeli & Muller, 2004, p. 62).

Twibell et al. (2005) also looked at nurse faculty's perception of critical thinking in clinical settings. The aim of this descriptive case study was to explore the perceptions of nurse educators teaching critical thinking skills to undergraduate nursing student in clinical settings. The researchers interviewed 6 clinical nursing instructors individually thrice at two weekly intervals. Using a modified version of the developmental research sequence (DRS) devised by Spradley, five themes emerged. These included putting it all together; strategies to promote critical thinking; role of clinical instructors; beneficial characteristics of instructors; and rewards for critical thinking.

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Themes that had the greatest consensus among respondents were putting it all together and strategies to promote critical thinking. The theme, putting it all together was understood to mean combining different parts into one piece. Participants used phrases such as information seeking, reflecting on experiences, assigning meaning, problem solving, predicting, planning, and application to novel contexts. The strategies to promote critical thinking domain saw respondents acknowledging the instructor as a central element in influential learners' ability to think critically. The questioning, written products, clinical conferences, and student journals were noted by the participants as the four definite strategies to foster critical thinking in students, though questioning was the most used (Twibell et al., 2005).The researchers concluded that critical thinking in nursing may be different from other disciplines because of affective dimension of nursing practice, clinical processes, and the nature of nursing knowledge. Twibell et al. (2005) recommended the use of different teaching strategies to promote the development of critical thinking in nursing practice as being the best approach for faculty.

Zygmont and Schaefer (2006) tested nurse faculty with California Critical Thinking Skills Test (CCTST). The purpose of the study was to determine the critical thinking skills of nurse faculty. A sample of 300 full-time nurse faculty from all types of nursing education programs (except doctorate) from the National League for Nursing member schools was randomly selected. Five packets containing the California Critical Thinking Skills Test (CCTST), the Learning Environment Preferences (LEP), and a demographic questionnaire were sent to

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the directors or chairs of the 60 schools of nursing selected. Only thirty-seven faculty completed and returned the packets.

The study revealed that the majority (78.4%) of the nurse faculty responding noted that they had not attended any formal or informal training in critical thinking. About one fifth (18.9%) reported having some training in critical thinking. When two categories of college students' scores on the California Critical Thinking Skills Test were contrasted against the faculty scores, it was revealed that most faculty members are significantly more skilled at critical thinking than the classic fourth year student. Faculty and students had a related mean score. This led the researchers to conclude that there might be a link between critical thinking skills promotion in students and the capacity of the nurse educator to employ critical thinking. Accordingly, a nurse educator who is not skilled in critical thinking may disadvantage his/her students in promoting critical thinking skills needed for practice. The researchers also noted critical thinking skills may be associated with time, experience, and education. Additionally, the nurse educators noted that promoting critical thinking in students seen as going further than information sharing but rather helping them through guidance. The relationship between the student and teacher where an atmosphere is created for the student to question or challenge an idea is a key part in fostering critical thinking. Zygmont and Schaefer (2006) finally recommended that the faculty should emphasize how the student comprehends and considers content (and not just covering the content), brainstorming on experiences in the clinical settings, and integrating active learning methods into the classroom settings. The major

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weakness of this study was the small sample size used and therefore cannot be generalized.

Riddell's (2007) study on nurse educators was aimed at developing an understanding of nurse educators' perceptions of critical thinking and how it can be assessed. The nurse educators the University of Western Ontario, in London, Ontario, Canada were selected and interviewed. The nurse faculty noted that critical thinking was more than problem solving. Teaching strategies that encouraged critical thinking included how students were questioned, case studies, role playing, journaling, or Socratic questioning. The researcher concluded that even though nursing is not a linear process, it was often taught as if it were a linear process.

More recently, Al Hadid (2012) studied the perception of nurse educators in Jordan. The purpose of this explorative research was to examine the critical thinking experiences of nursing faculty in six universities in Jordan. The sample for the study included 100 Masters and PhD nurse educators from 4 public and 2 private universities with a return rate of 73%. The tools used to collect data were a questionnaire with three sections–the experience survey, California Critical Thinking Skill Test, and the California Critical Thinking Disposition Inventory.

The results showed that nurse faculty exhibited positive dispositions of critical thinking on the California Critical Thinking Disposition Inventory and high anticipations of practicing critical thinking. However, an overall mean score of 12.37 was lower than the average 16.8 found among 4-year graduates in the United State of America on the skill test. The results further showed that nurse

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educators needed additional professional training in critical thinking to help develop the critical thinking skills of students. Additionally, the results were influenced by age, gender, degree and experience in education. Those with PhD degrees scored significantly higher on all scales then those with Masters degrees. Similarly, participants with an age greater than 55 years recorded significantly higher than the other age groups. Female respondents attained significantly higher on the analysis and induction sections, and overall item, while the males achieved significantly higher on deduction section. The study indicated that nurse faculty did not reveal critical thinking in the test; they possessed positive disposition and elevated perceived application of critical thinking. The researcher therefore recommended that measure should be adopted to translate the perception of the nurse educators regarding critical thinking into practices. The organizations where the educators work must take the responsibility to improve professional knowledge on critical thinking.

Critical thinking is pertinent to evidence-based practice. Evidence-based practice helps in achieving nursing care that takes into account the preferences of patients and their relatives through clinical judgments that are more useful, rationalized, and vibrant (Ireland, 2008; Youngblut & Brooten, 2001). Profetto-McGrath (2005) looked at critical thinking in evidence-based practice. The purpose of the study was to explore the importance of critical thinking as a vital skill required to support evidence-based practice and to describe some of the teaching strategies and processes that are considered key to the ongoing development of critical thinking. This was a systematic review that looked at

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several issues in relation to evidence-based practice. It was revealed that critical thinking skills and dispositions are required for evidence-based practice and indeed, critical thinking and disposition are consistent with evidence-based practice. Critical thinking and disposition, and evidence-based practice could be promoted in students both in the classroom and clinical settings. A number of teaching strategies were noted as fostering both critical thinking skills and evidence-based practice. These strategies which are grouped included writing strategies (reflective journaling, scholarly writing, and critiques), questioning and role modeling, verbal strategies (clinical rounds, simulations, and planned controversies and debates), problem-based learning, concept maps, and computer-assisted instruction. The author concluded that nurses and nursing student who think critically are able to effectively ensure the implementation of evidence-based practice. In light of this, critical thinking skills as well as evidence-based practice must be taught explicitly and implicitly at the beginning of nursing programs, constantly taught during the programs, and promoted as a lifelong characteristic of the practicing nurses. The study did not describe the method used for this systematic review and therefore could be a weakness in this study.

Nursing students are described as self-directed adults who decide to enter nursing programs (Mangena & Chabeli, 2005). Nursing students enter nursing programs for personal and professional development, social, economic, or political reasons. Personal reasons may be to establish careers that will sustain themselves and their families. Professionally, nursing students may assess their career goals and enter nursing programs for career advancement.

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They enter undergraduate and graduate nursing programs at different levels of maturity and with obligations such as families and jobs. Nursing students enter nursing programs with their educational goals and objectives intact seeking specific information to reach those goals and objectives. Additionally, nursing students understand the responsibility needed for learning.

Nursing faculty who understand the principles of adult learning create learning environments with the understanding that nursing students have individual characteristics; enter nursing programs with enormous life experiences to share and expand learning; require flexibility in learning because of differences in learning styles; and have internal enthusiasm as the most likely reason for entering the nursing programs (Knowles, 1984). Nursing students need an awareness of their ability to critically think about nursing subject content and gain confidence in their ability to analyze, integrate, and evaluate subject content (Mangena & Chabeli, 2005; Riddell, 2007; Zygmont & Schafer, 2006).

Teaching Strategies that Promote Critical Thinking Development

In contemporary times, many nursing programs emphasized the promotion of critical thinking skills owing to its substance and significance to professional nursing practice. Yet, studies on critical thinking are usually weak or the findings contrast, resulting in limitation in its utilization in the educational field (Adams, 1999; Staib, 2003; Walsh & Seldomridge, 2006). As a result, many nurse educators continue to teach learners in the same manner they were taught with much importance attached to content coverage (National League for Nursing, 2003). Lecture becomes the obvious choice as the instructional method because

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lecture could cover large amount of content within a limited time (DeYoung, 2009). Even if the teacher allows question and answer time, the lecture format is passive which restricts assumptions. It does not allow curious questions. Additionally, faculty makes every effort to include all vital information into their lectures because of the large amount of content that needs to be covered at the neglect of focusing on synthesizing knowledge through critical thinking for desired outcomes and clinical judgment (Fitzpatrick, 2005). The result is the production of graduates who cannot think critically but rather reproduce facts (McMullen & McMullen, 2009; Neuman & Fawcett, 2002).

To ensure the promotion of critical thinking in students, faculty needs to re-examine their own philosophy of teaching. The learner-centered philosophy must be at the center of teaching in order to maximize student learning (National League for Nurses, 2003). The traditional lecture format is preferred because of the perceived challenges in opting for unconventional instructional formats (Candela et al., 2006). Time limitations and student resistance account for the choice of lecturing method (Colley, 2012). These factors may hinder the introduction of a learner-centered philosophy into nursing programs.

In order to guarantee that the educators are fostering critical thinking skills among students, some specific teaching methods have been suggested. These included concept mapping, role play, reflective analysis, simulation, Socratic questioning, seminar, and problem-based learning. These strategies promote active learner participation in the learning process and emphasize adult learning and critical thinking concepts (Billings & Halstead, 2009).

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Strategies to foster critical thinking are a shared responsibility between the learner and the teacher. However, it is the duty of the educator to create the atmosphere that encourages this concept (DeYoung, 2009). Mentorship and facilitation of learning is the teacher's role.

Strategies to foster critical thinking include discussion (DeYoung, 2009), asking effective questions (Socratic questioning) (Brown, Bannigan & Gill, 2009), problem based learning (DeYoung, 2009), concept mapping (Clayton, 2006), narrative pedagogy (DeYoung, 2009) as well as case study (Billings & Halstead, 2009; DeYoung, 2009). Other strategies include one minute papers (DeYoung, 2009), microthemes (Paul, 1994), focused reflection through journaling and other means (Murphy, 2004), and self-assessment evaluation (DeYoung, 2009).

Studies investigating particular teaching strategies that promote critical thinking skill development in students like case study, journaling, simulation, concept mapping, and questioning, are few and have not been repeated (Ellermann, Kataoka-Yahiro, & Wong, 2006; Fonteyn, 2007; Hoffman, 2008; Lasater, & Nielsen, 2009; Ravert, 2008). Adams (1999) in his integrated review on critical thinking revealed several deficiencies. The deficiencies in the literature included lack of random sampling, lack of comparison groups, and small sample sizes (Adams, 1999). In addition, although critical thinking assessment tools are available, most of them are general in their application to population and therefore do not measure critical thinking in the clinical reasoning approach (Ravert, 2008). Vacek (2009) asserted that current curricula used in nursing programs do not

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empower learners. She argued that instead of students becoming autonomous in their thinking and in evaluating a state of affairs, they actually become more reliant and subservient.

Chabeli and Muller's (2004) study described above also revealed that the nurse educators noted strategies for promoting reflective thinking skills in students. These were noted in the second phase of the study that included encouraging students to ask questions, lecture demonstration (giving lecture and demonstrating simultaneously), observations (through simulation, field trips, demonstration, and audio-visuals), and narrative (storytelling). Other teaching strategies noted by the nurse educators to encourage skills included reflective journal writing, nursing process/case studies, peer tutoring, and concept mapping.

The use of poster presentations, workbook, and observations of performance with checklist and rating scales enabled students' comprehension and response evaluation (Chabeli & Muller, 2004). Other teaching strategies reported by nurse educators to promote skills in students included clinical conference, values clarification, research/community outreach projects as well as self-directed learning contracts. To evaluate the learning of this skill, research presentations, rounding on students on units, and comprehensive task performance assessments were strategies used by this group of educators (Chabeli & Muller, 20004). Chabeli and Muller (2004) concluded that clinical teaching provides a dynamic, continually varying, real-life situations where students are able to link theory with practice.

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Murphy's (2004) study on teaching methods looked at the effects of focused reflection and articulation through the use of post-clinical conferences and journal writing to promote clinical reasoning. The aim of the study was to determine the effectiveness of the use of focused reflection and articulation on the development of clinical reasoning. The author defined clinical reasoning as the health care provider's ability to appraise clients' health needs and analyze information gathered to acknowledge and frame problems in the viewpoints of the individualized clients' setting.

Four cohorts of clinical students and instructors in a community college nursing program were selected to participate in the study. Two student cohorts and the instructors were trained in the use of focused reflection and articulation. The training did not benefit the other groups.

The clinical teachers used Assessment and Analysis Instrument (AAI) to evaluate the students' written patient assessment. The AAI instrument was used to appraise students' assessment and their ability to analyze both at the middle of the term and at the end of the semester. A 5-point Likert-type tool was used to verify the domain-specific knowledge by using a single examination test. Murphy (2004) used the Focused Reflection and Articulation Inventory (ARI) to assess the learner's self-report of occurrence and perceived effectiveness in the clinical situation.

The findings of the study indicated that there were no significant differences between the groups on the composite scores of clinical reasoning. However a significant difference was found between the two groups on the

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practice measure of clinical reasoning. Those with lower level clinical reasoning were more task and skill oriented. However, those that had higher level of clinical reasoning revealed that reflection was self-initiated and they were passionate and inherently motivated to think about the problem and give explanation. Therefore, the author's conclusion (Murphy, 2004) was that the strategies of having the educator employ knowledge to focus, point, and instruct learners to concentrate on significant points in the clinical setting positively influenced learning outcomes.

The nursing care plan has been used to determine learners' capacity to evaluate and prioritize patients' needs but some assert that critical thinking has been hampered by many standardized care plan being available (Billings & Halstead, 2009). Concepts maps are diagrammatic forms of ideas (Irvine, 1995, as cited in Toofany, 2008) "usually consisting of nodes or cells that contain linked concepts, items or questions" (Toofany, 2008, p. 28). Concept mapping is considered an effective strategy that improves critical thinking and clinical decision-making skills in students. Concept mapping can be utilized in other teaching methods including lectures, group work, discussion in the classroom setting, clinical practice settings as well as skills laboratories (All, Huycke, & Fisher, 2003).

Post clinical experience, learners were supposed to integrate all the relevant patient information into a concept map. Both objective and subjective data on the patient were included into concept map. Concept maps give a visual illustration of a patient's disease process, condition, and treatments (Ellermann,

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Kataoka-Yahiro, & Wong, 2006). Learners use graphical representation of material and identified associations among patient factors. Because students' critical thinking skills were considered to have improved if they could better develop concept maps within a semester. Similarly, Abel and Freeze (2006) asserted that concept maps improved the critical thinking skills of students.

Wilgis and McConnell (2008) conducted a study on concept mapping and the development of critical thinking. The purpose of this study was to determine whether concept mapping fostered critical thinking skills in graduate nurses during a hospital orientation. Benners' (1984, as cited in Wilgis & McConnell (2008) Novice to Expert Theory was used as the framework of the study to aid in identifying and incorporating appropriate critical thinking elements from orientation objectives.

Fourteen graduate nurses present in an orientation program in a Northeastern Florida hospital participated in the study. The participants were required to map a key health problem, main assessment findings, suitable nursing diagnoses, and interventions of a patient at the commencement and then at the closing stage of an orientation course. Only 1 of the 14 had graduated from a baccalaureate nursing program. A tool constructed by Schuster was used to evaluate the concept maps. The tool was congruent with the six American Nurses Association (ANA) standards of nursing care practice which is used for collection of data, analysis of data to formulate nursing diagnosis, identification of expected patient outcomes, development of a plan of care, implementation of nursing measures, and patient's evaluation.

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The results revealed a significant increase in the composite score during post orientation evaluation (Wilgis & McConnell, 2008). The global scores for criteria associated with linkages of data with interventions indicated considerable improvement in graduate nurses' skills. The graduates were able to identify the main health needs and come out with specific and appropriate interventions on the concept maps during post orientation program evaluation. Post orientation program concept maps were more reasonable, more composite and placed in a suitable hierarchical order. The graduate nurses' post orientation evaluation comments were assessed and classified. The findings revealed that 71% of participants believed that concept mapping assisted them in making a link between knowledge, improved prioritization, helped in the organization of care plan and fostered critical thinking. However, 14% of participants perceived that concept mapping did not assist them or was too baffling. Wilgis and McConnell (2008) concluded that concept mapping facilitated linkages in knowledge, improved the ability to prioritize, assisted in the organization of care plan, and improved the development of critical thinking. They recommended that instructing in the fundamental idea of concept mapping in orientation and preceptor courses could prepare both new graduates and preceptors for using this alternative way of promoting critical thinking. However, a major limitation of this study was the small sample size and therefore cannot be generalized.

Similarly, Atay and Karabacak (2012) conducted a study on nursing care plan and concept mapping. The purpose of the study was to analyze the effects of care plans prepared using concept maps on the critical thinking dispositions of

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students. A pre-test post-test control group design was used with a sample size comprising 80 freshmen and sophomore students from the nursing department of a health educational institution in Turkey. Three sessions of training on concept mapping nursing care plan were given to the experimental group while the control group prepared nursing care plans using the column format. Both groups' critical thinking dispositions were evaluated with California Critical Thinking Disposition Inventory (CCTDI) during the pre-test and post-test. Those in the experimental group were also evaluated with the criteria for evaluating care plans with concept maps developed by Schuster in 2000. The results were then compared using t-test.

The findings revealed that though both the experimental and control groups did not have significant differences in the total and sub-scale pre-test scores on the CCTDI, there were significant differences in the total and sub-scale post-test scores among the experimental and control groups. Additionally, the experimental group had significant differences in the mean core on the concept map care plan evaluation criteria. The findings suggested that if concept mapping strategy was used to instruct students in nursing care plan, their critical thinking skills would be fostered. Though the study provided support for concept mapping in nursing care plan, concept mapping was also structured and therefore may not encourage creativity.

Reflective journaling has been reported as an effective teaching method that promotes the development of critical thinking skills in student. It helps students contemplate and reflect on life or learning experiences which enhanced self-awareness (Billings & Halstead, 2009). Journal entry development leads to

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active learning engagement through expressed thoughts in a form of writing (Billings & Halstead, 2009). The active learning nature of journaling makes it a good tool for fostering the critical thinking skills of learners. Ruthman et al. (2004) reported on the outcomes of guidelines developed for clinical journaling. The purpose of the guidelines was to provide a reliable structure for student learning and evaluation in a range of clinical practice settings. The author revised practices of the nursing program following which a draft of proposed clinical log project was developed. The proposal was reviewed by two English department faculty members who helped to clarify the design and limits of the guidelines. The draft was presented to the entire faculty for their input. After some minor changes were made, the guidelines were tried in at three practicum levels. Students also reviewed the guidelines and recommended setting specific guidelines. Subsequently, further revision was done and the guidelines piloted throughout the program for a year. Weekly logs were kept by students for each clinical practice rotation. They identified learning goals, analyzed incidences and related them to nursing practice, related theory and practice through the utilization of critical thinking, and reflected on the experiences. A pattern of achievements and a cumulative integration of skills provided reliable standards for student evaluation as the students journeyed through the program. After reviewing the project for a year, project was found to be favorable and adopted as a reliable method of communication during the 2001/2002 academic year.

Students and faculty were asked to evaluate the clinical log activity two semesters after the department had adopted the activity. Eighty-eight out of one

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hundred ten students were involved in the evaluation. Students identified several benefits which were congruent with the objectives of the log activities. These benefits included helping them reflect, think, determine strengths and weaknesses, enhanced personal improvement, and setting of goals (Ruthman et al., 2004). Similarly, faculty found that the log improve reflection; provided the avenue to track progression of students; helped students organize thoughts better; engaged students active learning as a result of weekly goals setting; enhanced students' ability in communicating thoughts, fears, and skills; helped students think critically by relating theory to practice; and created the opportunity to identify experiences that were desired (Ruthman et al., 2004). Despite challenges of repetitiveness and time consuming nature of journaling (Ruthman et al., 2004), timely feedbacks to students and constant review of the log activities potential enhance critical thinking skills of students.

Additionally, Walsh and Seldomridge (2006) looked at how critical thinking is being implemented in classroom settings and clinical practice settings. The objective of the study was to explore the role and place of critical thinking in an undergraduate nursing program and examined whether critical thinking was being strengthened or diminished in the clinical and classroom settings. The researchers identified a variety of issues in reinforcing the significance of critical thinking in nursing education. The study revealed that nurse educators acknowledged their role in developing critical thinking skills in learners. However, educators faced the obstacle of pressure to cover content within the available time. Students are said to benefit more if they are taught to analyze

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issues. Accordingly, educators must move away from using only lecture format in their instructions.

Dewey (1948) pioneered reflection on one's action as a way to strengthen knowledge. Reflection on one's nursing action has been identified as important to the development of clinical judgment (Tanner, 2006; Vacek, 2009). Learners, if provided with a template or guide for appraising clinical judgment can develop those skills. Dillard et al. (2009) examining the journals of 25 nursing students for evidence of clinical judgment with the Lasater Clinical Judgment Rubric. The Rubric provided a format to evaluate students' skills. The findings revealed that students had the tendency of focusing on more task-oriented duties than the clinical reasoning process. The students also employed Lasater Clinical Judgment Rubric to monitor the level of their progress (Lasater & Nielsen, 2009).

A strong questioning skill is the most essential strategy of accomplishing the goal of dealing with the complexities of the current health-care environment (Brown et al., 2009). According to Paul and Elder, (2006, as cited in Brown et al., 2009), Socratic questioning is the most effective teaching strategy for the nurturing of critical thinking because it stresses on reflection and logic. The Socratic questioning method suggests that when people query critically they generate more knowledge than focusing on finding a right answer (Brown et al., 2009). However, Socratic questioning is a difficult skill to develop, and for it to succeed faculty needs support and guidance (Brown et al., 2009).

Problem-based learning has been cited in improving the development of critical thinking in students. In problem-based learning, students are provided a

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patient and context to work on individually or in groups to resolve the problem presented in the situation. Problem-based learning could be either concept or content focused with a specific problem to identify and determine a course of treatment. Through Socratic questioning, faculty is able to assess development of students' critical thinking.

Jones' (2008) study used problem-based learning based on Bloom's Taxonomy of cognitive domains to assess the development of critical thinking abilities in nursing students. The aim of the study was to examine the impact of problem-based learning on the development of critical thinking and communication skills in nursing students. The study design was a quasi-experimental, using pretest-posttest with control and intervention groups. Students were tested in critical thinking and communication skills at the beginning of the semester and again at the end through the evaluation of two care plans and two communication observations. Participants in the treatment group kept a reflective journal on their thoughts and ideas. A guide containing a series of open-ended questions was provided for the reflective writings. Using convenience sampling, the study involved 60 nursing students in the second-year taking a maternal-newborn nursing course at an associated degree community college in New York through a convenience sampling. They were assigned equally into control and experimental groups (30 students in each group) according to their clinical days. The researcher taught, observed, and evaluated the two groups. Both control and the problem-based learning experimental groups had the same course of study for the first two weeks. This included pre- and post-conference lectures on a specific

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topic by the clinical preceptor. Students in the control group continued with teaching modality for the remaining period of the semester. The problem-based learning experimental group were introduced to problem-based learning strategies in the third week of the semester and continued until the end of the semester. Three tools were used in the study. The first tool was nursing care plan which was evaluated using Bloom's (1956, as cited in Jones, 2008) Taxonomy. The second tool was participants' communication interactions (verbal, nonverbal, and written communications with staff and patients as observed by faculty). The interactions were scored using Bloom's taxonomy for affective domain. The final tool was the reflective journaling entries which were evaluated for themes, perceptions, self-awareness, and problem-based learning process.

The findings indicated that even though both groups showed improvement over the course of the semester, the students in the problem-based learning experimental group demonstrated a highly significant increase in critical thinking and communication levels, compared with the control group (Jones, 2008). The intervention group showed increases in cognitive ability, which has been associated with gains in critical thinking skills, as well as critical thinking skills. Problem-based learning also improved development of collaboration skills of students when they work in groups. Anderson and Tredway (2009) posited that involving students in the learning process increased students' comprehension of the learning material. Students were able to learn from their colleagues through group work (Jones, 2008).

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Discussion has been cited as an effective tool in promoting critical thinking (Bligh, 2000, as cited in Christine & Rysavy, 2012). Discussion could be formal or informal. Students get the opportunity to apply their knowledge of theories, principles, concepts, and by so doing transmit their knowledge to new and different situation (DeYoung, 2009). Despite some disadvantages of discussion, McKeachie (2002, as cited in DeYoung, 2009) believed that discussion can be used in all class sizes. Discussion enabled students learn the team approach of problem-solving (DeYoung, 2009).

Barriers to the Promotion of Critical Thinking Development

Educators hamper the development of critical thinking in students without even knowing (Bowers & McCarthy, 1993). Some nurse educators think that learners can learn anything only if they hear it from the educators (Tanner, 2004). As a result, class sessions are fashioned such that questions are not asked (DeYoung, 2009). According to DeYoung (2009), this presentation style gives students a false impression that clinical situations are not as complex or difficult as they are.

Another barrier to the critical thinking development is when educators envisage perfection and that expectation is emphasized (DeYoung, 2009). Additionally, nurse educators frequently assume certain things about learners that do not foster critical thinking (DeYoung, 2009). According to DeYoung (2009), some of these assumptions include new students are unable to solve problems or engage in critical thinking; errors are always bad, expensive, and should be

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eliminated; there is one best approach to think about and resolve challenges or issues, it is good to be sure; and the educator knows best.

In order to cover content in the limited time faculty often uses the lecture format (DeYoung, 2009). The lecture is not a desirable format to effectively foster critical thinking (DeYoung, 2009). Paul (1992) observed that it is still common to see the educator instructing for the student to repeat, the teacher becomes talkative with the students keeping silent. Paul (1992) further asserted that if students are to be assisted to develop critical thinking skills, then educators must move away from what he called "addiction to coverage" (p.11). It is acknowledged that educators "try to cram facts and information into learners' heads and fail to give them adequate time to truly understand……" (Hanford, 1994, as cited in DeYoung, 2009, p. 223). Less information should be provided and students should be allowed to discuss and think about the information.

The concept of critical thinking has been highly highlighted in educational literature (Johnson 1992, as cited in Billings & Halstead, 2009; Sears & Parsons, 1991, as cited in Billings & Halstead, 2009). However, many educators have not embraced it as a vital value and, may not comprehend the concept as constructed overtime by authors persuaded of its substance (Ennis 1987, as cited in Billings & Halstead, 2009, Paul, 1993, as cited in Billings & Halstead, 2009). For example, Barnes (1983, as cited in Billings & Halstead, 2009) reported that faculty posed questions that were at the lowest level of cognitive skills. She discovered that faculty used lecturing most often with questions that are at low level of cognitive skills; and they followed with more lecturing. Similarly, Braxton and Nordvall

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(1985, as cited in Billings & Halstead, 2009) scrutinized examination questions in 83 colleges. They discovered that below 0.5% of questions might be categorized as requiring the evaluation skills to answer–a very vital critical thinking skill.

DeYoung (2009) further asserted that the curricula used by nursing programs are structured in a manner that do not promote critical thinking skills. The courses in the curricula are already selected for learners and the sequencing of the courses is cautiously according to a script (DeYoung, 2009). Therefore, learners are not expected to think about why they are taking certain courses. Moreover, they do not have the alternative of choosing between courses (DeYoung, 2009). Educators do not thoroughly appraise the assignments they give to students (DeYoung, 2009). Multiple choice tests are often used and though they can be used to facilitate critical thinking they are usually at a low level of complexity (DeYoung, 2009).

There are several studies that have examined the barriers to critical thinking development. For example, a study that looked at the perception of nurse educators of critical thinking was carried out by Shell (2001). The purpose of this study was to elicit nurse educators' perceptions of barriers that impede the implementation of critical thinking teaching strategies. This used a descriptive design with a sample size of 262 (with 67% response rate) from a population of nurse educators who were teaching in Bachelor of Science Nursing programs in Tennessee at the time of the study. The nurse educators sampled were mostly full-time (90%), while 10% were part-time or adjunct nurse educators. The tool used was a self-administered questionnaire.

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The results of the study indicated the greatest barrier perceived by faculty to teach critical thinking was student characteristics. These comprised lack of learners' interest, learners' resistance to active learning, learners' expectations of a lecture method, and the desire to get a good grade against knowledge. Shell (2001) suggested that the fear of unfavorable student evaluations of nurse educators and uncertainty of the effectiveness of instructional methods that are different from students' expectations might have accounted for this perception. Time constraints were reported as the second highest perceived barrier to teaching critical thinking. The time related barriers consisted of inadequate time to learn new teaching strategies, unavailability of time to prepare and plan activities that promote critical thinking, and insufficient time in the classroom. Most nurse educators identified the time requirement for research as rivaling with teaching duties. The next perceived barrier to critical thinking was the need to cover content. Shell (2001) concluded that even though there are a number of barriers to overcome in order to foster critical thinking effectively, faculty believed that critical thinking was a pertinent aim in teaching. Additionally, further instruction on teaching critical thinking was required. Shell's recommendation was that nurse educators should be assisted and encouraged to foster critical thinking in students.

According to Mangena and Chabeli (2005), integration of critical thinking by nursing educators and students is hampered by many barriers. In a study aimed at exploring and describing their perceptions of critical thinking in nursing education, focus group interviews were conducted. Seven educators and twelve fourth-year nursing students were selected to participate in the study. One of the

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barriers identified was lack of adequate knowledge of critical thinking by students and some educators. Another barrier was that nurse educators were not comfortable with the movement to the learner-centered approach with outcome-based education from the traditional teacher-centered approach to education. This unconsciously led to some opposition to the change in instruction. Additionally, a low level educational background of students made it difficult for instructors to incorporate critical thinking skills.

Raymond and Profetto-McGrath (2005) identified positive and negative factors that affected the use of strategies that supported improvement of critical-thinking in the classroom setting. Favorable factors included opportunities for the faculty to develop, support from authority, the liberty to try innovative ideas, and mentorship. The negative factors to the implementation of critical thinking strategies included demanding workloads, strict content coverage, inadequate time for new ideas, colleague educators who were not receptive to critical thinking, and the exhibition of unhelpful attitudes by students regarding critical thinking teaching methods in the classroom. The authors concluded that educators needed support in developing critical thinking skills as well as strategies to battle the negative interaction with learners and peers.

Kowalczyk, Hackworth and Case-Smith (2012) conducted a study in the field of radiology to identify the perceived level of competence in teaching and assessing critical thinking skills and the difficulties facing radiologic science program directors in applying student-centered teaching methods. It was a survey conducted in 2009 that sampled 692 radiography and radiation therapy program

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directors. The schools selected were both degree and certificate awarding institutions. Participants were recruited through email invitations and reminded twice within a week interval. Three hundred and seventeen responded to the invitation. The instrument used was fashioned after Shell's (2001) survey of perceived barriers to the implementation of strategies to promote critical thinking.

The findings of the study revealed that directors of radiology programs acknowledged the importance of incorporating instructional methods that promote critical thinking (Kowalczyk et al., 2012). They agreed that students must be supported to employ alternative ways of thinking. Nonetheless, obstacles to the implementation of critical thinking teaching strategies identified in the study included: rivaling inadequate time with the need to cover large content, students resisting critical thinking teaching strategies, students showing no motivation for critical thinking, large amount of teaching workloads leading to inadequate time for program directors themselves to learn and apply innovative teaching strategies, and lack of suitable instructional materials. The findings also show that the level of education of program directors positively influenced their perceived confidence, capability to model critical thinking skills, and capability to evaluate student critical thinking skills irrespective of the institutional level of education of the academic program (Kowalczyk et al., 2012). Most of the educators in this study accepted the need for professional development in critical thinking teaching methods

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Simpson and Courtney's (2007) Conceptual Framework to Guide Teaching and Evaluation of Critical Thinking Skills

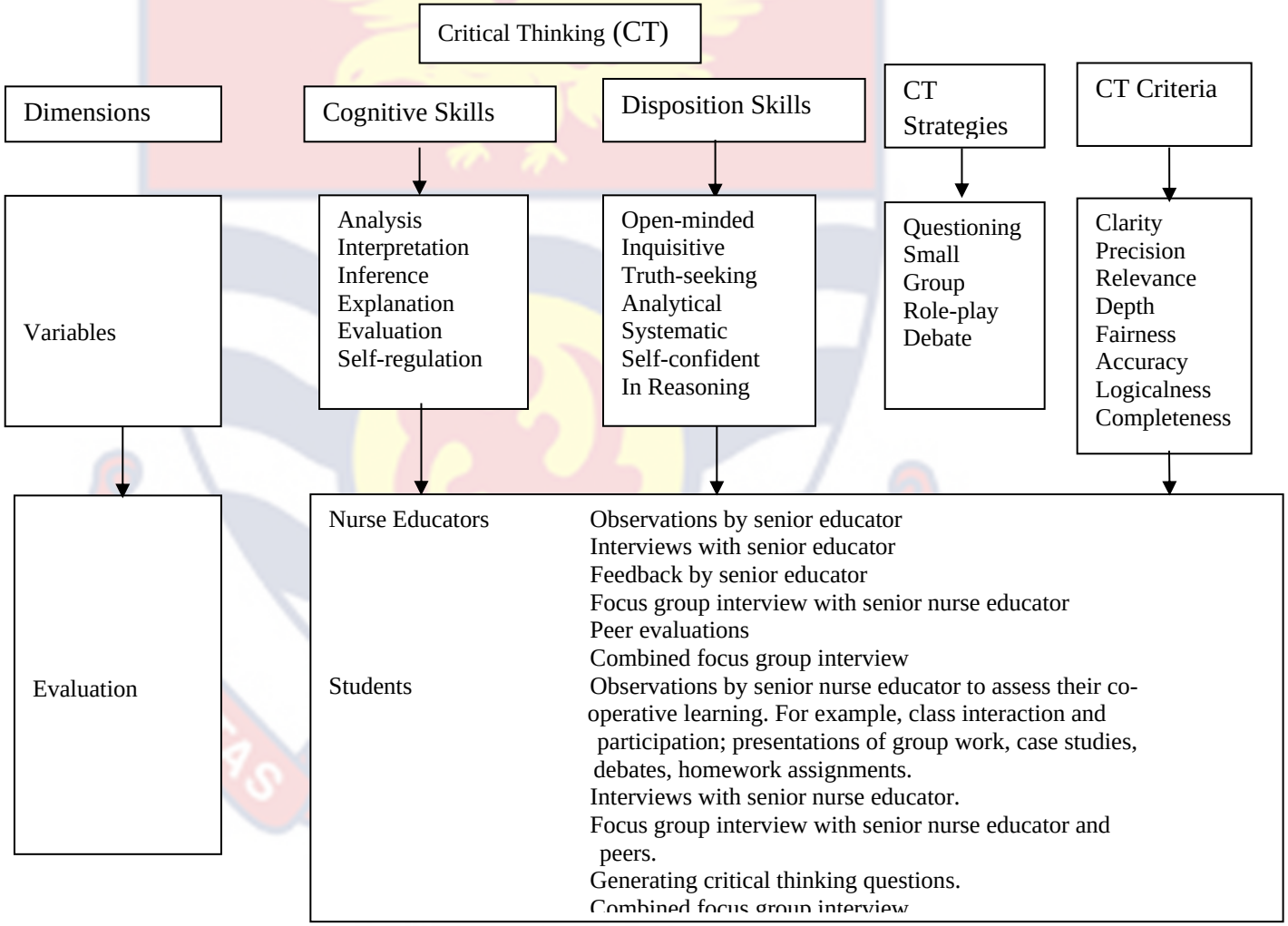

Figure 1: Simpson and Courtney' Conceptual Framework of Critical Thinking Skills

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Simpson and Courtney's (2007) conceptual model/framework (see figure 1) was developed to guide the development of critical thinking skills in Middle-Eastern nurses. The conceptual model was adapted from Paul (1993, 1990, as cited in Simpson & Courtney, 2007); Facione et al (1998, as cited in Simpson & Courtney); King (1995, as cited in Simpson & Courtney, 2007); Arangie (1997, as cited in Simpson & Courtney, 2007); Colucciello (1997, as cited in Simpson & Courtney, 2007, as cited in Simpson & Courtney 2007); Dexter et al (1997, as cited in Simpson & Courtney, 2007) and Whiteside (1997, as cited in Simpson & Courtney, 2009), and reflects the dimensions, variables and evaluation of critical thinking. The model is separated into three components namely: dimensions, variables, and evaluation

Dimensions and variables

According to Simpson and Courtney (2007) dimensions are cognitive and dispositions that are essential for an individual to be considered an effective critical thinker. Dimensions and variables were explained together because they are inter-related (Simpson & Courtney, 2007). The term dimensions was also referred to as interacting elements which included strategies that promoted critical thinking skills as well as criteria of critical thinking (Paul, 1993). They are explained as follows:

1. **Cognitive skills** involved "analysis, interpretation, inference, explanation, evaluation and self regulation" (Facione et al., 1998; 1994, as cited in Simpson & Courtney, 2007, p.59).

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2. **The disposition skills** included elements such as "open-mindedness, inquisitive, truth seeking, being analytical, systematic and self confident in reasoning" (Facione et al 1998, 1994, as cited in Simpson & Courtney, 2007, p.59).
3. **Critical thinking strategies** involved elements "questioning, small group activity, role-play and debate" (Simpson & Courtney, 2007, p.59). They were teaching methods used to foster critical thinking skills.
4. **Critical thinking criteria/intellectual criteria** included elements such as "clarity, precision, specificity, relevance, depth, fairness, accuracy, logicalness and completeness" (Paul 1993, 1990, as cited in Simpson & Courtney, 2007, p.59).

Evaluation

According to Simpson and Courtney (2007), evaluation involved senior nurse educators' observation of nurse educators as to whether they were using the dimensions and variables efficiently to foster critical thinking skills. The observations entailed assessment of nurse educators using their co-operative learning (class interaction, participation); and the ability to generate critical thinking questions.

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Conceptual Framework for the Study

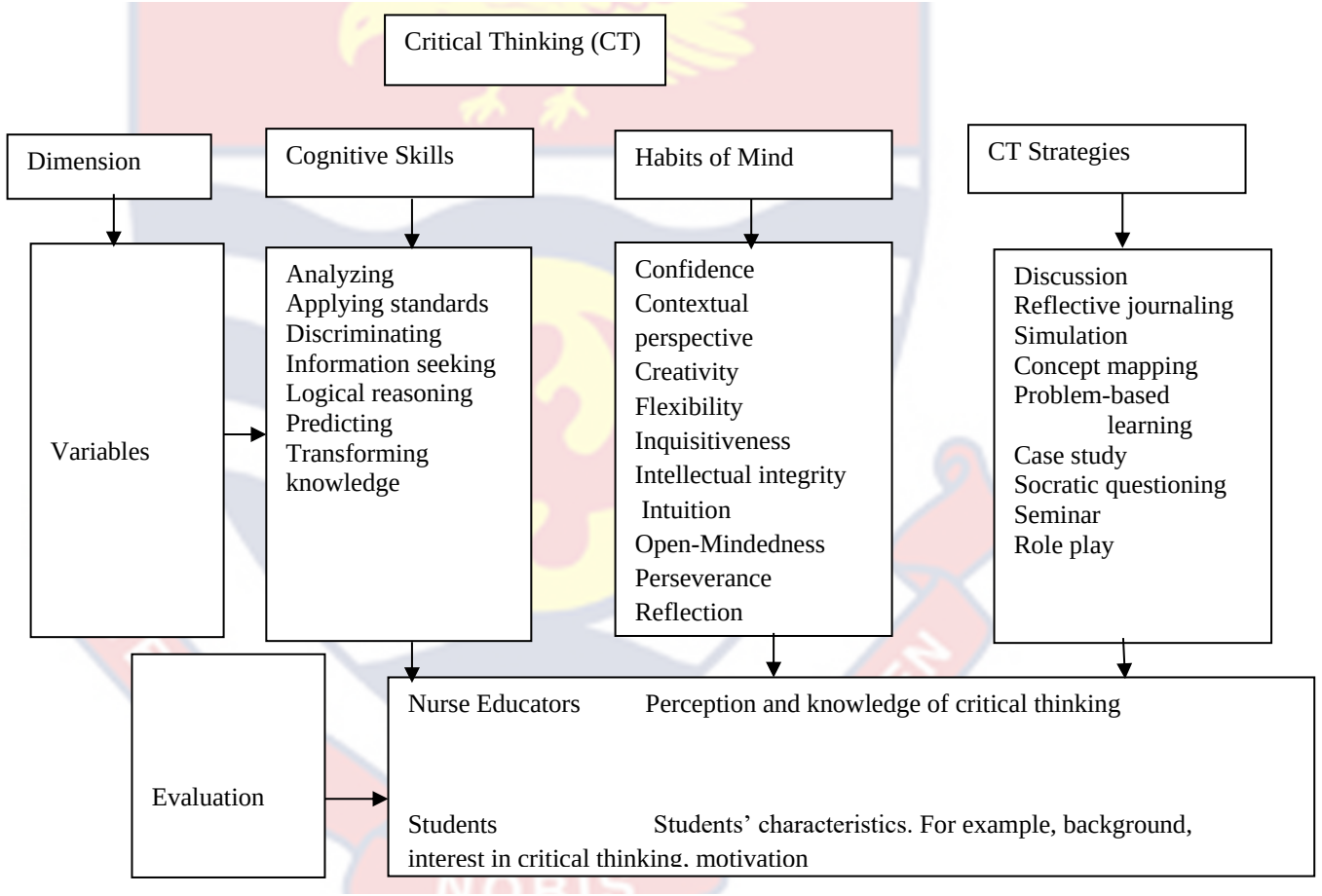

Figure 2: Eclectic Conceptual Framework of Critical Thinking Skills

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The conceptual framework used for this study (see figure 2) was based on the reviewed relevant literature for this study. It was adapted from Simpson and Courtney (2007) and Scheffer and Rubenfeld (2000). The three components in Simpson and Courtney's model were modified. The model is divided into three components consisting of: dimensions, variables, and evaluation

In this study, cognitive skills and disposition skills in Simpson and Courtney's model were replaced with the cognitive skills and habits of mind respectively as found in Scheffer and Rubenfeld's (2000) definition of critical thinking. Also, evaluation was modified to mean nursing faculty's perception and knowledge of critical thinking and students' characteristics. The dimensions and variables in this study were explained together because they relate. They are explained as follows:

1. **Cognitive skills** included "analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting, and transforming knowledge" (Scheffer & Rubenfeld, 2000, p. 357).
2. **Habits of mind** included "confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance, and reflection" (Scheffer & Rubenfeld, 2000, p. 357).
3. **Nurse educator/nursing faculty** refers to individuals who have current teaching appointments with nursing educational institutions. The term nursing faculty is used interchangeably with nurse educator.

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4. **Teaching strategy** is an instructional method used by nursing faculty based on their perception that it effectively develops the learning outcome. The terms instructional strategies, teaching methods, and teaching strategies are used interchangeably. These instructional strategies include discussion (DeYoung, 2009), Socratic questioning (Brown, et al., 2009), problem-based learning (DeYoung, 2009; Jones, 2008), concept mapping (Clayton, 2006; Lasater, 2007), case studies (Stuenkel, 2009), simulation (Bambini, Washburn, & Perkin, 2009), reflective journaling (Murphy, 2004), seminar, and role play (Simpson & Courtney, 2007)
5. **Evaluation** in this study is operationally defined as factors that influence the development of critical thinking in students. These include faculty's perception and knowledge of critical thinking as well as students' characteristics.
6. **Perception** is an individual's viewpoint or opinion of belief of something. In this study, it is the faculty's opinion or viewpoint of belief of critical thinking. The nurse educators with positive perceptions of critical thinking are more receptive in employing critical thinking strategies.
7. **Knowledge** is nurse educators' definition should contain attributes that recognizes the two aspects of critical thinking (affective and cognitive).

Nurse educators in nursing programs must employ critical thinking strategies that foster critical thinking skills in learners. The critical thinking skills must cover both cognitive skills and habits of mind in order for students who graduate from these programs to meet the needs and expectations of the dynamic

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health care environment. The ability of the nurse educator to utilize the critical thinking strategies in teaching would foster critical thinking skills in students. Nurse educators who possess positive perception and are knowledgeable about critical thinking are more receptive in utilizing critical thinking strategies to foster critical thinking skills in students. Moreover, the inability of the educator to employ critical thinking strategies would result in barriers to the development of critical thinking skills in students.

Summary of Literature Review

There is lack of consensus as to what critical thinking entails though there have been efforts made to ensure uniformity. There are two main schools of thought on critical thinking (Lewis & Smith, 1993). The first one is the philosophical approach which looks at critical thinking in relation to characteristics and qualities (Facione, 1990; Facione, 2000; Ennis, 1985; Lipman, 1988; McPeck; 1981). The second school of thought is the psychological perspective which focuses on the actions and behaviors the critical thinker performs (Halpern, 1998; Sternberg, 1986; Willinghams, 2007). A third school of thought which is relatively new is found in the educational field (Brookfield, 1987, as cited in Raymond-Senuik & Profetto-McGrath, 2011; Dewey, 1933, as cited in Raymond-Senuik & Profetto-McGrath, 2011). Despite the state of affairs, there are aspects of critical thinking that the three approaches have consensus on. These areas of agreement include the exact abilities that classically go with the definition of critical thinking. These abilities consist of examining assertions, evidence, or arguments (Ennis, 1985; Facione, 1990; Halpern, 1998; Paul, 1992);

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generalizing based on deductive or inductive reasoning (Ennis, 1985; Facione, 1990; Paul, 1992; Willingham, 2007); evaluating or judging (Case, 2005; Ennis, 1985; Facione, 1990; Lipman, 1988; Tindal & Nolet, 1995); and resolving problems or deciding on issues (Ennis, 1985; Halpern, 1998; Willingham, 2007). Additionally, the majority of authors of critical thinking supported the fact that critical thinking also involves disposition besides the abilities that the critical thinker must possess. These include open-mindedness (Bailin, Case, & Coombs, 1999; Ennis, 1985; Facione 1990, 2000; Halpern, 1998); fair-mindedness (Bailin et al., 1999; Facione, 1990); tendency to seek reason (Bailin et al., 1999; Ennis, 1985; Paul, 1992); inquisitiveness (Bailin et al., 1999; Facione, 1990, 2000); desire to be well-informed (Ennis, 1985; Facione, 1990); flexibility (Facione, 1990; Halpern, 1998); and respect for, and willingness to entertain, others' viewpoints (Bailin et al., 1999; Facione, 1990).

In nursing, critical thinking is deemed essential because it leads to good clinical judgment. Just as in many discipline, critical thinking in nursing lacks consensus (Rubenfeld & Scheffer, 2004). A systematic review has concluded that the concept of critical thinking has matured, and reflected in clearer definitions in the nursing literature even though it is suggested that further attention be paid to boundary delineation within definitions of critical thinking (Turner, 2005). Antecedents and consequences are not well defined, and many consequences are identical to attributes and surrogate terms (Turner, 2005). An attempt to build consensus on definition of critical thinking in nursing has yielded two aspects of critical thinking in nursing (Sheffer & Rubenfeld, 2000). These were classified as

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habits of mind (affective) and cognitive skills with their related elements. Three elements (creativity, intuition, and contextual perspective) in the definition which are considered more feminine concepts underscored the distinction between definitions formulated from inside nursing to those formulated outside nursing.

Many teaching methods and strategies that promote critical thinking skills are well documented. However, many nurse educators continue to teach learners in the same manner they were taught with much importance attached to covering content. Lecture format remains the obvious choice for instructional method (Fitzpatrick, 2005). Teaching methods that promote active learning enhance the development of critical thinking in students. It is the duty of the educator to create the atmosphere that encourages active learning (DeYoung, 2009). Strategies to foster critical thinking include discussion (DeYoung, 2009), Socratic questioning (Brown et al., 2009), problem-based learning (DeYoung, 2009; Jones, 2008), concept mapping (Clayton, 2006; Lasater, 2007), narrative pedagogy (DeYoung, 2009), case studies (Stuenkel, 2009), simulation (Bambini et al., 2009). However, methods must be varied to ensure desired outcomes.

Some researchers have examined the factors that hinder the promotion of critical thinking in students. Educators themselves were cited as one of the main hindrance to the promotion of development of critical thinking in students without even knowing. Some of these barriers included student-related factors, time-related barriers, faculty-related, workload, and need to cover content (Kowalczyk et al., 2012; Mangena & Chabeli, 2005; Shell, 2001).

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Nursing education in Ghana has undergone many changes. These changes have mainly been influenced by external factors. These external influences have been cited as some of the challenges nursing education in Ghana faces (Opare & Mill, 2000). Nurse educators are central to nursing education in Ghana. The faculty's perception of critical thinking influences the kind of learning environment that is created for critical thinking development. Hence, this study assessed the faculty's perception of critical thinking in Ghana. An eclectic model was developed from Simpson and Courtney's (2007) concept to guide the study.

The next chapter discusses and justifies the research methods and data collection technique adopted for this study.

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CHAPTER THREE

METHODOLOGY

This chapter presents an overview of the methodology that was used to address the research questions for this study. The research questions included: (1) What is the perception of nursing faculty about critical thinking? (2) What instructional strategies do nursing faculty use to promote the development of critical thinking in their students? (3) What are the barriers that hinder nursing faculty from fostering critical thinking in students? (4) Is there a significant difference in perceptions of critical thinking between nursing faculty of NTCs and public universities? The chapter is presented in nine sections. The first section describes the research design. The second describes the settings and the participating institutions of the study. The third describes the target population. The fourth describes the procedure used to obtain sample for the study. The fifth examines the instruments used in the research study. The sixth section describes the procedure used to collect data. The seventh section looks at ethical considerations. The eighth section describes how data were analyzed. The chapter concludes with a summary of the methods.

Research Design

A descriptive cross-sectional quantitative study design was used in carrying out this study. The descriptive design presents a picture of the details of a situation in which the research is being conducted (Polit & Beck, 2012).

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Primarily, the purpose of this study was to document the perception of nurse educators of critical thinking as it occurred in the nursing schools. Therefore the choice of the descriptive study was appropriate. In fact, the study was univariate descriptive and therefore no relationship is studied (Polit & Beck, 2012).

This study was also a cross-sectional design because participants were contacted at a fixed point in time and relevant information was obtained from them. On the basis of this information, the frequency of the responses was determined (Polit & Beck, 2012). The descriptive cross-sectional was an ideal design for this study because of economic and time constraints. The study sites were selected through a random sampling technique across seven regions of Ghana. Therefore, this research design for a time-bound program was obviously appropriate.

Study Setting

Multi-sites were used for the study (see table 1). The study was conducted in eleven nursing educational institutions from November, 2013 to March, 2014. The schools were publicly funded institutions offering general nursing programs. Some of the schools, especially the NTCs offered other programs rather than general nursing. Some of the programs by some of the NTCs included midwifery and nursing assistantship. Likewise, the universities offered other courses such as diplomas and undergraduate programs in emergency nursing, midwifery, pediatric nursing as well as postgraduate programs. In addition, the universities were more research inclined apparently due to the presence of the postgraduate programs as well as university policies that require that lecturers engage in scholarship. Two

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of the study sites were public universities and the rest of the nine sites were NTCs. These institutions were selected from seven regions of Ghana but the schools selected randomly came from six regions. These regions included Brong Ahafo Region, Eastern Region, Western Region, Central Region, Greater Accra Region, and Ashanti Region. The three northern regions namely Upper East Region, Upper West Region, and Northern Region were excluded due to distance and time factor.

The distribution of the schools was as follows: 2 nursing schools each from Brong Ahafo Region, Eastern Region, Greater Accra Region, Ashanti Region, and Central Region; and one school from Western Region. No school represented Volta Region because the random selection done did not select any school from the region.

Study Population

The target population for this study consisted of nursing faculty with current full-time appointment to nursing schools/departments of public universities and nurses' training colleges in Ghana offering general nursing programs excluding the three northern regions (Northern Region, Upper West Region, and Upper East Region). The target population included lecturers from the universities as well as tutors from the NTCs.

The characteristics of the target population regarding those at the universities differed from those at the NTCs. It is a requirement for those teaching at the universities to possess a minimum qualification of a master of philosophy degree or equivalent. Therefore, the instructors at the universities should have

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possessed a minimum of master of philosophy degrees as well as doctoral degrees. Furthermore, some instructors in the universities have had previous working experience at NTCs prior to being appointed by the universities. On the other hand, the minimum credential for instructors at NTCs is a first degree. Some of the instructors in the NTCs also possessed master's degrees. None of the instructors at the NTCs possessed doctoral degree nor possessed prior working experience as a full-time lecturer at the universities.

Sample and Sampling Technique

A sample size of 163 was used for the study. This sample size was arrived at using the Slovin's (1960, as cited in Ellen, n.d.) formula as outlined below.

A sample size of 163 was used for the study. This sample size was arrived at using the Slovin's (1960), as cited in Ellen, n.d.) formula as outlined below.

Using the Slovin's formula $n = \frac{N}{1+Ne^2}$

where,

n is the sample size

N is the population size

e is the margin of error

1 is a constant value

N= 275 nurse educators

e = 0.05

Therefore, sample size $n = \frac{275}{1+275\ x\ (0.05)^2}$

= 162.96

Approximated to 163 participants

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The cluster sampling technique was used. The choice of cluster sampling technique was a result of different categories of nursing faculty that were involved in this study. The nursing training schools offering general nursing programs were selected using the Ministry of Health's (2013) Application Brochure and Form for health training institutions in Ghana document. In order, to eliminate any possible bias, the university in which the researcher was a staff was excluded. To this end, the University of Cape Coast was not included in the study. Meanwhile, all faculty from the two out of three public universities offering general nursing programs were included in the study because they were very few. They were University of Ghana, and Kwame Nkrumah University of Science and Technology.

The universities are accredited by the Nursing and Midwifery Council of Ghana (NMC) and National Accreditation Board to run diploma and degree nursing programs. The nursing programs are periodically reviewed by these two statutory bodies to ensure compliance with the standards they set. The NMC has a standardized curriculum for these programs. NTCs tend to strictly follow this curriculum but the universities have the flexibility to vary the curriculum to meet their unique roles. The minimum entry requirements to the diploma and degree nursing programs are either West Africa Senior Secondary School Certificate Examination (WASSCE) or Senior Secondary School Certificate Examination (SSSCE).

Program requirements defer according to category of program and certificate awarded after completion. For the diploma nursing program, candidates

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must obtain aggregate 36 or better for WASSCE or 24 or better for SSSCE in six subjects comprising 3 core and 3 electives (Science, General Arts, Agriculture, and Home Economics). An age limit of 18 to 35 years also applies. For the university-based degree program, the candidates must also possess aggregate 36 or better in WASSCE or 24 or better in SSSCE in six subjects comprising 3 core and 3 electives. However, most universities accept candidates with pure science background.

Table 1: Distribution of respondents to the study

Study Sites	Number of Faculty Selected
Cape Coast NTC	15
Twifo-Praso NTC	12
Koforidua NTC	19
Sekondi NTC	17
Sunyani NTC	12
Kumasi NTC	27
Korle-Bu NTC	25
Nkawkaw NTC	5
Berekum NTC	11
Department of Nursing, KNUST	8
School of Nursing, UG	12
TOTAL	163

The schools selected for the study are indicated on table1. Nine Nurses' Training Colleges in the seven regions in Southern Ghana were selected. Time and financial resource constraints were the main considerations for using NTCs in the seven southern regions. Therefore, NTCs in the three northern regions of Ghana were excluded. The nine NTCs were selected from the 13 NTCs in the

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seven regions offering general nursing programs. The thirteen NTCs were numbered from 1 to 13. The numbers were indicated on pieces of paper and put in a bowl. Then nine NTCs were randomly selected. The NTCs selected included Cape Coast Nursing and Midwifery Training College, Korle-Bu Nursing and Midwifery Training College, Kumasi Nursing and Midwifery Training College, Koforidua Nursing and Midwifery Training College, Twifo-Praso Nursing and Midwifery Training College, Sekondi Nursing and Midwifery Training College, Berekum Nursing and Midwifery Training College, Nkawkaw Nurses' Training College, and Sunyani Nurses' Training College.

Individual respondents were contacted after permission had been obtained through the heads of the institutions selected (see appendix A). Lists of faculty in those institutions were obtained. They were allotted numbers on pieces of paper and placed in a container and selected randomly until the required number was chosen. The faculty was then approached in their offices and recruited to take part in the study.

Inclusion criteria

The study participants were nursing faculty members in the selected universities and nurses' training colleges. Those with full-time appointments with the institutions and were accessible were included in the study.

Exclusion criteria

The study excluded nursing educators from the following institutions:

1. Faculty in the selected institutions who were on leave (annual leave, maternity leave, sick leave, study leave) and therefore were unavailable.

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2. Nursing faculty from enrolled nursing educational institutions.
3. Nursing faculty from post-basic programs and,
4. Nursing faculty from community nursing programs.

Instrumentation

Data for this study were collected using a self-administered questionnaire. The items on the questionnaire were 5 likert-type scales. It was the preferred data collection tool for this study because the participants were educated and could read. Two nursing education experts were requested to review the questionnaire to assist in establishing face validity and content validity. The face validity by these experts though may not possess strong evidence of validity is relevant in allowing these expert to find out if the instrument looks like it is measuring what it is expected to measure (Polit & Beck, 2012). Likewise, the content validity relates to the extent to which a tool is measuring adequately what it intends to measure (Polit & Beck, 2012). The evaluation of these experts helped this researcher address some aspects that were initially left out.

The questionnaire included five sections (see appendix B). The first section was to obtain information on the participants in order to describe their characteristics. This section contained seven items that related to demographic data which included gender, age, level of education, current appointment, teaching experience, and rank. The second section which contained 24 items included perceptions on the concept of critical thinking. The third containing three main items looked at the teaching strategies employed by the nurse educators to foster the development of the critical thinking in students. The fourth which

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contained 34 items addressed issues concerning the barriers to the promotion of critical thinking in the classroom. The fifth section, which was optional, provided a space for participants to supply further opinions on issues concerning critical thinking if they so wished.

Reliability of instrument

A pre-test study was conducted at an Seventh Day Adventists NTC in Kumasi. Six nurse educators were invited to participate in the pre-test after permission was sought from the head of the school. Four participants completed and returned the questionnaires. Additionally, space was provided for the participants to make further comments on how the questionnaire could be improved. The questionnaires were analyzed and relevant changes were made based on the analysis. Some of the questions were reworded to capture the intended meaning. Some questions were added to the tool which increased the number of items from 57 to 70.

The Cronbach's reliability coefficient alpha was used to establish the internal consistency of the scales used for the study (see appendix C). The Cronbach's alpha is the most common method used to measure internal consistency (Polit & Beck, 2012) and therefore was helpful for this study. Values between 0.00 and + 1.00 were regarded as normal (Polit & Beck, 2012). The nearness of the Cronbach's reliability coefficient alpha to 1 indicates a greater internal consistency of the scales (Gliem & Gliem, 2003, as cited in Kowalczyk et al., 2012).

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The perception scale (second section) which measured the perceptions of faculty on the concept of critical thinking yielded a Cronbach's alpha of 0.682. The teaching strategy scale (third section) which measured the teaching methods employed by the nurse educators yielded a Cronbach's alpha of 0.723. Additionally, the fourth section that addressed issues concerning the barriers to the promotion of critical thinking in the classroom recorded a Cronbach's alpha of 0.88. Results from the Cronbach's alpha indicated a strong reliability for the barrier scale to the promotion of critical thinking development in students. The strengths for the reliability of the tools that measured the perception of faculty regarding concept of critical thinking as well as teaching methods used to enhance the development of critical thinking were fairly good.

Further measures were employed to ensure the reliability. Quality control was done at the stages of coding and data entry. These included cleaning the data. All answered questionnaires were screened to ensure their suitability before they were inputted. In this study, all the answered questionnaires were suitable.

Data Collection Procedure

The data collection procedure was carried out following the steps below:

Step I: The instrument designed for this study was pre-tested. The pre-testing was conducted in September, 2013 at Seventh Day Adventists NTC in Kumasi. The purpose was to identify errors, test the instrument for reliability, and identify possible challenges for smooth implementation of the project. Six nurse educators were invited to participate in the pre-test study after permission was sought from the head of the school. The response rate was 66.7%. Additionally, space was

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provided for the participants to make further comments on how the questionnaire could be improved. The questionnaires were analyzed and relevant changes were made based on the analysis. Ambiguity and inconsistencies were corrected.

Step II: The main data was collected from November, 2013 to March, 2014 in eleven research sites. An introductory letter from School of Nursing, University of Cape Coast was submitted to the schools included in the study for permission.

Step III: Lists of faculty were obtained and participants randomly sampled. The researcher personally contacted the participants and obtained their informed consent. The questionnaires were also administered. The participants were given a week to return their answered questionnaires.

Step IV: The researcher visited the research sites and collected the answered questionnaires. Some of the unanswered questionnaires were also returned. However, some participants had travelled for varied reasons and were unable to submit their questionnaires.

Ethical Considerations

The study protocol was submitted to the University of Cape Coast Institutional Review Board for approval. A provisional approval was granted (see appendix D) pending the final report. All principles of research ethics were adhered to. Participants were briefed comprehensively about the aim of the study and procedures before obtaining their informed consents. They were informed about their rights to refuse to participate in the study or to leave at any time without giving any reason. Also, they were informed that their refusal to participate in the study would not be used against them in any form. The

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confidentiality and anonymity of participants were enforced. They were assured that the data would be used only for research purposes. The study process did not entail any harmful effects on participants.

Informed consent forms (see appendix E) that were included in the questionnaires were separated and kept under lock and key to ensure that only the researcher had access to them. The self-administered questionnaires were destroyed after the analysis of the data. The questionnaires did not bear names of participants.

Data Analysis

The results were analyzed according to the research questions. Data entry and statistical analyzes were run with Statistical Package for the Social Sciences (SPSS) software, version 16. Questions one, two, and three were presented using descriptive statistics in the form of frequencies, percentages, means, and standard deviations for quantitative variables. Also, the barriers (question 3) to the development of critical thinking were summarized using factor analysis. Comparative analysis was done with the use of t-test for question four.

Item 8 which asked participants to give their own definition of critical thinking was analyzed looking at elements and attributes of critical thinking. The frequencies of the occurrences as expressed by the respondents were analyzed. Scheffer and Rubenfeld's (2000) definition of critical thinking was used as the framework of the analysis of this aspect of the study. The definition recognized critical thinking as both cognitive and affective (habits of mind).

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Summary

This chapter dealt with the methodology used to address the issue of concern. A multi-sites descriptive cross-sectional quantitative study design was used in carrying out this study. A cluster sampling technique was used to sample 163 nurse educators from NTCs and universities offering general nursing programs in seven regions in Ghana. The data were collected using self-administered questionnaire. The response rate was 65%. The results were entered and analyzed using Statistical Package for the Social Sciences (SPSS) software, version 16. Data were presented using descriptive statistics in the form of frequencies and percentages for variables, and means and standard deviations for quantitative variables. Comparative analysis was done with the use of t-test. Factor analysis was done to summarize the barriers scale.

The ensuing chapter presents and discusses the results of this study.

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CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter reports on the findings of the study as they relate to the four research questions. The findings are also discussed. The purpose of the study was to assess the nursing faculty's perception of critical thinking in Ghana. To achieve this purpose, the following research questions were formulated:

1. What is the perception of nursing faculty about critical thinking?
2. What instructional strategies do nursing faculty use to promote the development of critical thinking in their students?
3. What are the barriers that hinder nursing faculty from fostering critical thinking in students?
4. Is there a significant difference in perceptions of critical thinking between nursing faculty of NTCs and public universities?

One hundred sixty three nurse educators were sampled from publicly funded universities and NTCs in Ghana. The response rate was 65%.

Results

The results of the study include the characteristics of the respondents, perception of critical thinking, teaching strategies used in promoting critical thinking, barriers to the promotion of critical thinking, and the comparison of the perception of critical thinking of nurse educators in universities and NTCs.

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Table 2: Demographic Characteristics of Respondents (N=106)

Variables	Frequency	Percentage (%)
Gender		
Male	34	32.1
Female	72	67.9
Age group		
21 – 30 years	20	18.9
31 – 40 years	45	42.5
41 – 50 years	34	32.1
51 years and above	7	6.6
Level of education		
Diploma	7	6.6
First degree	57	53.8
Master's degree	41	38.7
Doctorate degree	1	0.9
Educational level discipline (N=76)		
BEd Health Sciences	22	28.9
General Nursing	18	23.7
B.Sc Nursing	9	11.8
MPH	12	15.8
Others	15	19.7
Current place of teaching		
Nursing training college	96	90.6
University	10	9.4
Previous place of teaching experience		
Nurses training college	82	77.4
University	8	7.5
Other	16	15.1

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Table 2 Continued

Other previous teaching institution (N=16)		
Ghana Education Service	10	62.5
Health assistant school	6	37.5
Years of teaching		
1 – 5 years	53	50
6 – 10 years	30	28.3
11 – 15 years	21	19.8
16 – 20 years	2	1.9
Rank/Position (N=91)		
Health tutor	21	23.1
Senior health tutor	14	15.4
Principal health tutor	7	7.7
Deputy chief health tutor	5	5.5
SSM	6	6.6
Midwifery Officer	4	4.4
PNO	12	13.2
NO	12	13.2
Lecturer	7	7.7
Staff nurse	3	3.3

The characteristics of the respondents are summarized (see table 2). The table showed that majority (67.9%) of the respondents was females. More than 60% of participants were 40 years or younger with only 6.6% above 50 years. The educational level of the respondents ranged from diploma to doctorate. More than half (53.8%) of respondents were first degree holders while only 1 (0.9%) held a doctorate degree at the time of the study. Few (6.6) nurse educators held diploma.

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Table 2 further indicated that the specific educational disciplines of the respondents varied between Bachelor of Education in Health Sciences (BEd) and Masters in Public Health (MPH). Close to 30% of nurse educators were Bachelor of Education in Health Sciences holders followed by General Nursing (23.7%). More than 90% of the respondents were teaching in Nursing Training Colleges at the time of the study and this was emphasized by 77.4% whose previous places of teaching experiences were with Nursing Training Colleges while 15.1% had experiences with other institutions, mostly with the Ghana Education Service (62.5%). The average teaching years was 6.2 years (SD=4.7), with 1 year and 20 years as minimum and maximum teaching years respectively. Half (50%) of the respondents had taught between 1 and 5 years while 1.9% (2) of the respondents had between 16 and 20 years teaching experience. Most (51.7%) of the respondents were Health Tutors with their ranks ranging from Health Tutors to Deputy Chief Health Tutors. Only 3.3% were staff nurses.

Question One: What is the perception of nursing faculty about critical thinking?

Faculty was specifically asked for their definition of critical thinking. Scheffer and Rubenfeld's (2000) definition of critical thinking was used as the basis for the analysis for participants responses. The results were categorized as habits of mind (affective) and cognitive skills with their characterizations. Seventeen attributes (cognitive, 7; and habits of mind, 10) are referred to in Scheffer and Rubenfeld's (2000) definition. The attributes of the habits of mind for critical thinking in nursing consisted of: "confidence, contextual perspective,

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creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance, and reflection" (Scheffer & Rubenfeld, 2000, p. 357). While the cognitive aspect included: "analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting, and transforming knowledge" (Scheffer & Rubenfeld, 2000, p. 357).

Table 3: Definition and Attributes of Critical Thinking

Cognitive :82 Occurrences		Habits of Mind (Affective): 15 Occurrences		Other Attributes: 17 Occurrences	
Attributes	Occurrences	Attributes	Occurrences	Attributes	Occurrences
Analyzing	31	Confidence	1	Art of pondering	1
Discriminating	8	Creativity	3	Decision making	1
Information seeking	3	Inquisitiveness	1	Evaluation	1
Logical reasoning	22	Intellectual integrity	2	Nursing process	2
Transforming knowledge	18	Intuition	1	Problem solving	12
		Open mindedness	5		
		Reflection	6		

Table 3 summarizes the responses. None of the faculty gave a clear, concise definition that captured all the various aspects of critical thinking as provided by Scheffer and Rubenfeld (2000), but most did provide some characteristics of critical thinking. Only 4.7% (5 respondents) faculty cited

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attributes that cut across both cognitive and affective domains of critical thinking as defined by Scheffer and Rubenfeld (2000). A few faculty (8.5%) did not respond to the question. Since Scheffer and Rubenfeld's (2000) definition recognized both affective and cognitive attributes of critical thinking, the expectation was that respondents should be able to mention at least one attribute from each domain to be considered knowledgeable or having the right perception of critical thinking. Therefore not answering the question or stating attributes that favored only one domain was considered inadequate. This is precisely because faculty in a profession like nursing must embrace both affective (attitude) and cognitive (skills) domains of critical thinking for effective health care.

Table 3 further indicated that 6 out of the 7 attributes in the cognitive domain were referred to while 7 out of the 10 attributes in the habits of mind (affective) domain were referred to. Additionally, the most frequently referred to domain was the cognitive (82 occurrences) while only 15 occurrences fell within the habits of mind domain. The most frequently referred to attribute in the cognitive domain was analysis with 31 occurrences while the least frequently referred to attribute was information seeking. The second and third frequently referred to were logical reasoning (22 occurrences) and transforming knowledge (18 occurrences) respectively.

In addition, 7 attributes of critical thinking in the affective domain (habits of mind) were cited as indicated in table 3. The most frequently cited attributes were reflection (6 occurrences) followed by open mindedness (5 occurrences). The least frequently attribute cited were confidence, inquisitiveness and intuition

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(with 1 occurrence each). Three attributes of affective domain in Scheffer and Rubenfeld's (2000) definition were not referred to at all. These were contextual perspective, flexibility, and perseverance.

There were some attributes the faculty referred to that did not fall under any of the attributes in Scheffer and Rubenfeld's (2000) definition of critical thinking. These had 17 occurrences and included the art of pondering, decision making, evaluation, nursing process, and problem solving. The highest was problem solving with 12 occurrences.

Table 4: Nursing Faculty's Perception of Critical Thinking

Variable	Strongly Agree N(%)	Agree N(%)	Undecided N(%)	Disagree N(%)	Strongly Disagree N(%)
Critical thinking (CT) is discipline specific	22 (20.8)	38(35.8)	15(14.2)	17(16.0)	14(13.2)
CT does not involve affective domain of learning	4(3.8)	11(10.4)	17(16.0)	39 (36.8)	35 (33.0)
CT involves only cognitive clinical learning	13(12.3)	14(13.2)	9(8.5)	39(36.8)	31(29.2)
CT is essential in making clinical judgments	77(72.6)	24(22.6)	4(3.8)	1(0.9)	0(0.0)
CT is needed for daily problem solving	63(59.4)	31(29.2)	4(3.8)	6(5.7)	2(1.9)
CT is needed for content to be learned better	52(49.1)	43(40.6)	6(5.7)	5(4.70	0(0.0)
CT is needed to transfer knowledge between courses	43(40.6)	51(48.1)	9(8.5)	2(1.9)	1(0.9)
Learning the content is more important than CT	4(3.8)	10(9.4)	7(6.6)	48(45.3)	37(34.9)
Active learning fosters CT	38(35.8)	53(50.0)	8(7.5)	4(3.8)	3(2.8)
No need to spend time on CT	4(3.8)	5(4.7)	7(6.6)	36(34.0)	54(50.9)

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Table 4 Continued

CT is learned naturally	3(2.8)	18(17.0)	14(13.2)	50(47.2)	21(19.8)
Faculty should incorporate CT in teaching strategies	61(57.5)	36(34.0)	4(3.8)	2(1.9)	3(2.8)
Faculty should share teaching philosophies on CT with students	38(35.8)	48(45.3)	13(12.3)	6(5.7)	1(0.9)
CT skills are only useful when dealing with complex nursing problems	9(8.5)	10(9.4)	9(8.5)	49(49.2)	29(27.4)
Nursing students have appropriate characteristics that foster CT	24(22.6)	51(48.1)	15(14.2)	13(12.3)	3(2.8)
Nursing students need to be supported to practice CT skills	47(44.3)	48(45.3)	5(4.7)	4(3.8)	2(1.9)
Nursing students should be taught CT as a course	29(27.4)	48(45.3)	15(14.2)	11(10.4)	3(2.3)
CT decreases clinical errors	51(48.1)	38(35.8)	10(9.4)	7(6.6)	0(0.0)
CT engages staff in care transformation	29(27.4)	63(59.4)	10(9.4)	2(1.9)	2(1.9)
Faculty is responsible and accountable for development of CT in students	29(27.4)	49(46.2)	16(15.1)	9(8.5)	3(2.8)
CT is an important component of professional practice	60(56.6)	38(35.8)	5(4.7)	2(1.9)	1(0.9)
CT improves the clinical competence of nurse practitioners	60(56.6)	40(37.7)	4(3.8)	2(1.9)	0(0.0)
CT is vital to evidence based nursing practice	54(50.9)	43(40.6)	7(6.6)	1(0.9)	1(0.9)
Ability to think critically is considered essential skill of for competent nursing practice	64(60.4)	36(34.0)	3(2.8)	1(0.9)	2(1.9)

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Other perceptions of critical are further indicated in table 4. Table 4 summarizes the perception of respondents on critical thinking. The table indicates that 56.6% of the respondents agreed that critical thinking is discipline specific. Majority (69.8%) of the respondents disagreed that critical thinking does not involve affective domain of learning. Also, most of the participants (66%) disagreed that critical thinking involves only cognitive domain of learning. More than 95% of the participants agreed that critical thinking is essential in making clinical judgments. Majority of participants (88.6%) believed that critical thinking is needed for daily problem solving. Similarly, majority of participants (89.7%) believed that critical thinking is needed for content to be learned better. Close to 90% believed critical thinking is needed to transfer knowledge between courses. Most participants (80.2%) perceived that learning the content is more important than critical thinking.

Table 4 further indicated that most of the participants (85.8%) perceived that active learning fosters critical thinking. Majority of the respondents (84.8%) disagreed with the perception that there is no need to spend time on critical learning. Most of the participants (67%) disagreed that critical thinking is learned naturally. Almost 92% of the respondents agreed that faculty should incorporate critical thinking in teaching strategies. Majority of the respondents (81.1%) agreed that faculty should share teaching philosophies on critical thinking with students. Furthermore, almost 74% of the respondents disagreed that critical thinking skills are only useful when dealing with complex nursing problems. With regards to whether nursing students have necessary characteristics to respond

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favorably to teaching and learning strategies that foster critical thinking, 70.7% of the respondents agreed.

Table 4 showed an overwhelming majority of the respondents (89.6%) agreed that nurse students need to be supported to practice critical thinking skills. More than 70% of participants believed that nursing students should be taught critical thinking. Similarly, most of the participants (83.9%) agreed that critical thinking decreases clinical errors. Concerning whether critical thinking engages staff in care transformation, majority of participants (86.8%) agreed. Most of the respondents (73.6%) agreed with the perception that faculty is responsible and accountable for the development of critical thinking in students. Also, large majority of participants (92.4%) agreed that critical thinking is an important component of professional practice. Similarly, an overwhelming majority of participants (94.3%) perceived that critical thinking improves the clinical competence of nurse practitioners. Almost 92% of the respondents agreed that critical thinking is vital to evidence-based nursing practice. Lastly, majority (94.4%) of the respondents agreed that the ability to think critically is considered essential skill for competent nursing practice.

Question Two: What instructional strategies do nursing faculty use to promote the development of critical thinking in their students?

To answer the above question, participants were asked to indicate "yes" or "no" by ticking the teaching methods they used to foster critical thinking in students. The results are presented below in table 5

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Table 5: Teaching Strategies that Promote Critical Thinking

Variable	Frequency	Percentage
Teaching strategies used in promoting critical thinking		
Lecture	44	41.5
Discussion	100	94.3
Reflective journaling	67	63.2
Simulation	53	50.0
Concept mapping	32	30.2
Problem-based learning	88	83.0
Case study	83	78.3
Socratic questioning	27	25.5
Seminar	44	41.5
Role play	63	59.4

Table 5 summarized the teaching methods that the respondents stated they employ to foster the development of critical thinking in students. Discussion (94%) topped the list of methods used to promote critical thinking in students. However, problem-based learning was the method mostly used to promote critical thinking in students if case study (a type of problem-based learning) is added to problem-based learning (problem-based learning-83% and case study 78.3%). The teaching method used least often to foster critical was Socratic questioning (25.5%). Concept mapping (30.2%) also received a fairly low consideration by faculty in fostering critical thinking in students. Meanwhile, lecture (41.5%) which may not be considered to be a teaching method that fosters critical thinking promotion was perceived to be a method worthy of promoting the development of

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critical thinking in students. More than a third of the respondents perceived lecture to be a teaching strategy promoting critical thinking.

Table 6: Teaching Methods Used by Faculty

Variable	Frequency	Percentage
Teaching methods employed in teaching		
Lecture	101	95.3
Discussion	106	100.0
Concept mapping	36	34.0
Simulation	52	49.1
Reflective journaling	17	16.0
Problem-based learning	75	70.8
Case study	85	80.2
Socratic questioning	30	28.3
Seminar	31	29.2
Role play	66	62.3

Table 6 summarizes teaching methods that are used daily by participants. Participants were asked to indicate the teaching methods they used in their classrooms. All the respondents used discussion (100%) in teaching students. Lecture (95.3%), case study (80.2%) and problem-based learning (70.8%) were also often used by the respondents to teach. The method of teaching used least often was reflective journaling (16%). Less than a third used Socratic questioning (28.3%) and seminar (29.2%) in teaching.

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Table 7: Teaching Methods Often Used by Faculty

Variable	Frequency	Percentage
Teaching methods most used in teaching		
Discussion	80	75.5
Lecture	74	69.8
Case study	18	17.0
Problem-based learning	16	15.1
Role play	15	14.2
Demonstration	6	5.7
Seminar	4	3.8
Socratic questioning	4	3.8
Brainstorming	3	2.8
Simulation	3	2.8

The teaching methods most common used in teaching are summarized in table 7. The teaching method most frequently used was discussion (75.5%) followed closely by lecture (69.8%). The remaining methods of teaching apart from discussion and lecture received little attention by the faculty. The methods that received least attention included simulation (2.8%), brainstorming (2.8%), Socratic questioning (3.8%), seminar (3.8%) as well as demonstration (5.7)

Question Three: What are the barriers that hinder nursing faculty from fostering critical thinking in students?

The findings regarding the above question are presented below. They are separated into faculty-related, student-related, course-related, and other barriers.

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Table 8: Faculty-related Barriers to Critical Thinking

Variable	Strongly Agree N(%)	Agree N(%)	Undecided N(%)	Disagree N(%)	Strongly Disagree N(%)
Faculty uses lecturing strategy most often	40(37.7)	50(47.2)	8(7.5)	7(6.6)	1(0.9)
Faculty tests do not stress critical thinking (CT)	13 (12.3)	34(32.1)	14(13.2)	38(35.8)	7(6.6)
Faculty does not provide sufficient time for thinking in class	15(14.2)	47(44.3)	8(7.5)	33(31.1)	3(2.8)
Faculty believes only certain students can perform higher order thinking	5(4.7)	29(27.4)	15(14.2)	40(37.7)	17(16.0)
Faculty is uncomfortable with questions that have no obvious answer	7(6.6)	29(27.4)	21(19.8)	36(34.0)	13(12.3)
Faculty feels a need to cover content	25(23.6)	57(53.8)	14(13.2)	7(6.6)	3(2.8)
CT skills and behavior are difficult to teach and assess	4(3.8)	44(41.5)	8(7.5)	42(39.6)	8(7.5)
Faculty does not often use different teaching methods	12(11.3)	36(34.0)	12(11.3)	36(34.0)	10(9.4)
Faculty does not have enough time to prepare activities that develop CT	13(12.3)	47(44.3)	47(44.3)	31(29.2)	6(5.7)
Faculty does not possess enough teaching skills to foster CT	5(4.7)	22(20.8)	16(15.1)	46(43.4)	17(16.0)

Table 8 summarized faculty-related factors that hinder the promotion of the development of critical thinking in students. The data revealed that the majority of respondents (84.9%) agreed to the barrier that faculty uses lecturing strategy most often. The respondents were fairly equally divided on the barrier

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that faculty tests do not stress critical thinking. Most (44.4 %) of the respondents agreed that faculty tests do not stress critical thinking, 41.4% meanwhile disagreed. Most of respondents (58.5%) agreed that faculty does not provide sufficient time for thinking in class. On the view that faculty believes only certain students can perform higher order of thinking 32.1% agreed with the majority of the respondents (53.7%) disagreeing.

Similarly, most of the respondents (46.3%) disagreed that faculty is uncomfortable with questions that have no obvious answer with 34% agreeing. Majority of the respondents (77.4%) agreed that faculty feels a need to cover content. On the perception that critical thinking skills and behavior are difficult to teach and assess, the responses were fairly divided. While 45.3% of respondents agreed that thinking skills and behavior are difficult to teach and assess, 47.1% disagreed. Similarly, the responses to the perception that faculty does not often use different teaching methods were fairly equal. While 45.3% of respondents agreed that faculty does not often use different teaching methods, 43.4% disagreed. More than half of the respondents (56.6%) agreed that faculty does not have enough time to prepare activities that develop critical thinking, while 34.9% disagreed. Majority of the respondents (59.4%) disagreed that faculty does not possess enough teaching skills to foster critical thinking.

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Table 9: Student-related Barriers to Critical Thinking

Variable	Strongly Agree N(%)	Agree N(%)	Undecided N(%)	Disagree N(%)	Strongly Disagree N(%)
Students are afraid of being incorrect	20(18.9)	54(50.9)	13(12.3)	16(15.1)	3(2.8)
Students expect that each question has a right answer	21(19.8)	53(50.0)	21(19.8)	10(9.4)	1(0.9)
Students perceive faculty as authority figures	28(26.4)	55(51.9)	11(10.4)	12(13.3)	0(0.0)
Students perceive textbooks as the authority for content	32(30.2)	49(46.2)	9(8.5)	15(14.2)	1(0.9)
Students prefer activities and assignments with simple factual questions and answers	38(35.8)	50(47.2)	11(10.4)	5(4.7)	2(1.9)
Students lack needed background for improving critical thinking (CT)	18(17.0)	43(40.6)	12(11.3)	27(25.5)	6(5.7)
Students lack interest CT activities	14(13.2)	50(47.2)	10(9.4)	26(24.5)	6(5.7)
Students lack experience in improving or using CT in school	15(14.2)	46(43.4)	16(15.1)	22(20.8)	6(5.7)

The student-related barriers to the fostering critical thinking skills in students are summarized on table 9. Majority of respondents (69.8%) agreed that students are afraid of being incorrect while only 17.9% disagreed. Similarly, majority of respondents (69.8%) agreed that students expect that each question has a right answer. Close to 80% of the respondents agreed that students perceived faculty as authority figures. The majority of the respondents (76.4%) agreed that students perceived textbooks as the authority for content. To the

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respondents, students preferred activities and assignments with simple factual questions and answers in that 83% of the respondents agreed with that perception. More than 57% of respondents agreed that students lacked needed background for improving critical thinking while over 30% disagreed. Close to a third of the respondents (60.4%) agreed that students lacked interest in critical thinking activities. Additionally, the majority of respondents (57.6%) agreed that students lack experience in improving or using critical thinking in school.

Table 10: Course-related Barriers to Critical Thinking

Variable	Strongly Agree N(%)	Agree N(%)	Undecided N(%)	Disagree N(%)	Strongly Disagree N(%)
Courses stress the acquisition of specific facts, ideas and concepts	30(28.3)	53(50.0)	5(4.7)	14(13.2)	4(3.8)
Courses do not give importance to improving critical thinking (CT)	12(11.3)	32(30.2)	14(13.2)	41(38.7)	7(6.6)
Courses are not conducive to CT	10(9.4)	27(25.5)	15(14.2)	44(41.5)	10(9.4)
Course content is highly structured	23(21.7)	53(50.0)	12(11.3)	14(13.2)	4(3.8)
Courses lead to memorization of knowledge	23(21.7)	31(29.2)	8(7.5)	37(34.9)	7(6.6)
Courses are not appropriate for developing CT	9(8.5)	19(17.9)	13(12.3)	49(46.2)	16(15.1)
Courses content is too loaded	27(25.5)	39(36.8)	22(20.8)	14(13.2)	4(3.8)

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Table 10 summarized course-related barriers to critical thinking. When it came to the perception that courses stressed the acquisition of specific facts, ideas and concepts, a large proportion of the respondents (78.3%) agreed with that perception. Over 45% of the respondents were not in agreement with the perception that courses do not give importance to improving critical thinking while 41.5% were in agreement. Similarly, more than 50% of respondents did not agree with the assertion that courses are not conducive to critical thinking compared with 34.9%. The results meanwhile indicated that over 70% of the respondents agreed that course content is highly structured and serves as a barrier to the promotion of critical thinking. Majority of respondents (50.9) agreed that courses lead to memorization of knowledge with 41.5% disagreeing. Over 60% disagreed that courses are not appropriate for developing critical thinking while 26.4% agreed. On the perception that course content is too loaded, majority of respondent (62.3%) agreed.

Table 11: Other Barriers to Critical Thinking

Variable	Strongly Agree N(%)	Agree N(%)	Undecided N(%)	Disagree N(%)	Strongly Disagree N(%)
Textbooks do not provide activities for improving critical thinking (CT)	15(14.2)	29(27.4)	8(7.5)	48(45.3)	6(5.7)
Teaching and learning are very much textbook dependent	17(16.0)	41(38.7)	6(5.7)	33(31.1)	9(8.5)
Faculty fears administrative	19(17.9)	44(41.5)	18(17.0)	21(19.8)	4(3.8)

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Table 11 Continued

disapproval of not covering content					
Improving CT is not included is supervisors' observation	19(17.9)	30(28.3)	21(19.8)	30(28.3)	6(5.7)
Faculty is not given information on improving CT when they first start teaching	22(20.8)	41(38.7)	21(19.8)	21(19.8)	1(0.9)
In- service training does not stress improvement of CT	17(16.0)	49(46.2)	13(12.3)	24(22.6)	3(2.8)
Supervisors force faculty to cover content	18(17.0)	38(35.8)	19(17.9)	30(28.3)	1(0.9)
Improving CT has not been established as one of the school priorities	20(18.9)	38(35.8)	14(13.2)	30(28.3)	4(3.8)
Administration and supervisors do not provide support for improving CT	19(17.9)	42(39.6)	17(16.0)	25(23.6)	3(2.8)

Table 11 summarized other barriers to critical thinking. When it came to the perception that textbooks do not provide activities for improving critical thinking there was about 10% gap between faculty who agreed and those who disagreed. While 51% disagreed, 41.6% agreed. Majority of the faculty (54.7%) agreed that teaching and learning are very much textbook dependent while 39.6% disagreed. More than twice of faculty who disagreed (23.6%) that faculty fears administrative disapproval of not covering content, agreed (59.4%) with that assertion. Faculty agreed (46.2%) that improving critical thinking is not included

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in supervisors' observation with a minority (34%) disagreeing. The respondents agreed (59.5%) that faculty is not given information on improving critical thinking when they first start teaching. Similarly, faculty (62.2%) was in agreement that in-service training does not stress improvement of critical thinking. According to the majority of the faculty (52.8%), supervisors force faculty to cover content. The majority of the faculty (54.7%) agreed that improving critical thinking had not been established as one of the school priorities. Faculty (57.5%) revealed that administration and supervisors do not provide support for improving critical thinking with 26.4% of the faculty disagreeing.

The barriers to critical thinking promotion in nursing students identified in the study included (1) educators used lecturing most often, (2) tests did not stress critical thinking, (3) inadequate time for students to think in class, (4) the need to cover content, (5) educators not using varieties of teaching methods, (6) faculty does not have enough time to prepare activities that develop critical thinking. More factors included (7) students afraid of being incorrect, (8) students expecting that each question should have a right answer (9) students perceiving faculty as authority figures, (10) students perceiving textbooks as the authority for content, (11) students preferring activities and assignments with simple factual questions and answers, (12) students lacking needed background for improving critical thinking (13) students lacking interest in critical thinking activities, and (14) students lacking experience in improving or using critical thinking. Other factors identified include (15) courses stressing the acquisition of specific facts,

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ideas and concepts, (16) content is highly structured to promote critical thinking, (17) courses lead to memorization of knowledge, and (18) course content being too loaded. The rest were(19) teaching and learning being very much textbook dependent, (20) faculty fearing administrative disapproval of not covering content, (21) critical thinking improvement not being included in supervisors' observation, (22) faculty not given information on improving critical thinking when they first start teaching, (23) in-service training not stressing improvement of critical thinking, (24) supervisors forcing faculty to cover content (25) improving critical thinking not being established as one of the school priorities, and (26) administration and supervisors not providing support for improving critical thinking.

Factor analysis

Component factor analysis (a data reduction test) was run to review and summarize the association between the factors that hindered the promotion of critical thinking development in students. Tables 13 and 14 explain the total variance and the factors that hindered the promotion of critical thinking. Figure 3 is the scree plot of eigenvalues.

Table 12: Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.748
Bartlett's Test of Sphericity	Approx. Chi-Square	1439.249
	Df	561
	Sig	0.000

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Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test Sphericity were used to test sampling adequacy (see table 12). The test showed the KMO value was 0.748 and the significance of the Bartlett's sphericity was 0.0000 (p=0.000), demonstrating that the sample was adequate for factor analysis (Hair, Anderson, Tatham, & Black, 1998, as cited in Chen, Wang, Yang, & Liou, 2003).

Table 13: Variance Explained by Eight Factors on the Critical Thinking Barriers (N=106)

Factor	Factor Label	Eigenvalues	Variance Explained	Cumulative Percentage %
1	Course structure and material	7.851	23.092	23.092
2	Lack of institutional framework/support	2.384	7.012	30.104
3	Students' characteristics	2.051	6.033	36.136
4	Time limitation	1.894	5.570	41.707
5	Faculty limitation;	1.784	5.248	46.955
6	Figure head	1.491	4.386	51.341
7	Encouraging inappropriate learning styles	1.470	4.322	55.663
8	Desire for good grades	1.279	3.761	59.424

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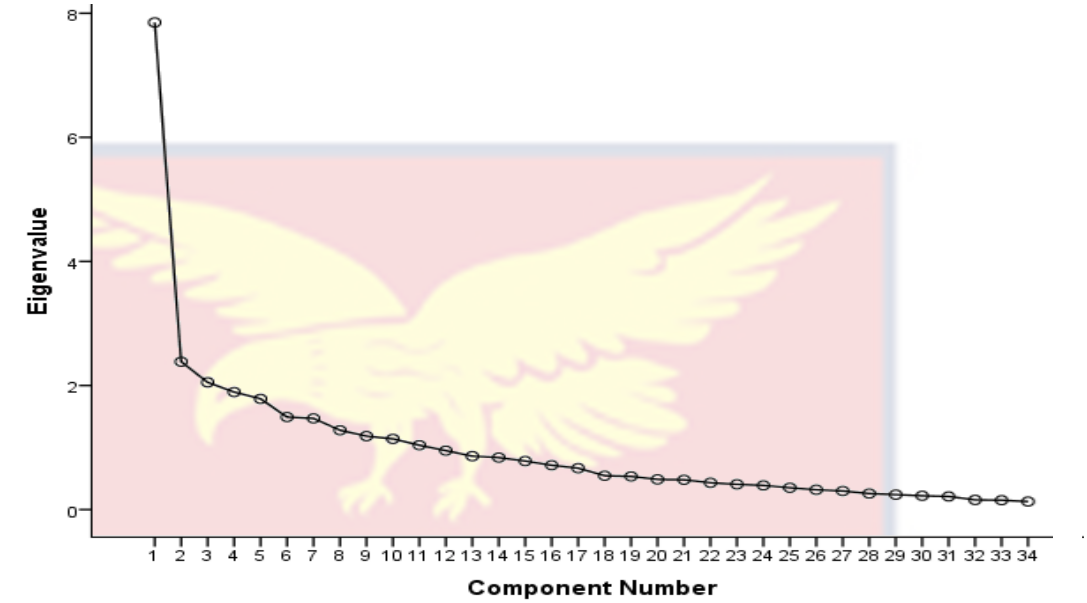

Figure 3: Scree Plot

Eleven factors emerged from the critical thinking scale factor analysis with an explained variance of 69.3%. Those which had eigenvalues more than 1.00 were considered. Items that did not load strongly on a single factor were excluded (see figure 3). Factors 9 through 11 only contributed approximately 3% of total variance. Eight factors emerged and were classified (see table 14) with their items.

The eight factors (see table 13) were classified as course structure and material; lack of institutional framework/support; students' characteristics; time limitation; faculty limitation; figure head; encouraging inappropriate learning styles; and desire for good grades.

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Table 14: Factor Loadings and Factor Structure of Critical Thinking Barrier

Item No.	Variable	1	2	3	4	5	6	7	8
59	Courses are not appropriate for developing critical thinking	0.816							
58	Courses lead to memorization of knowledge	0.720							
56	Courses are not conducive to critical thinking.	0.634							
55	Courses do not give importance to improving critical thinking	0.608							
61	Textbooks do not provide activities for improving critical thinking.	0.595							
62	Teaching and learning are very much textbook dependent.	0.434							
54	Courses stress the acquisition of specific facts, ideas, and concepts.	0.404							
65	Faculty is not given information on improving critical thinking when they first start teaching		0.727						
66	In-service training does not stress improvement of critical thinking		0.709						
64	Improving critical thinking is not included in supervisors' observations		0.645						
63	Faculty fears administrative disapproval of not covering content.		0.605						
53	Students lack experience in improving or using critical thinking in school			0.765					
52	Students lack interest in critical thinking activities			0.749					
51	Students lack needed background for improving critical thinking.			0.597					
46	Students are afraid of being incorrect			0.401					

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Table 14 Continued

67	Supervisors force faculty to cover content.	0.698				
57	Course Content are highly structured	0.659				
38	Faculty does not provide sufficient time for thinking in class	0.606				
68	Improving critical thinking has not been established as one of the school priorities.	0.508				
60	Course content is too loaded	0.392				
43	Faculty does not often use different teaching methods		0.806			
44	Faculty does not have enough time to prepare activities that develop CT		0.632			
45	Faculty does not possess enough teaching skills to foster CT		0.468			
37	Faculty tests do not stress CT		0.465			
39	Faculty believes only certain students can perform higher order thinking.			0.773		
40	Faculty is uncomfortable with questions that have no obvious answer.			0.753		
49	Students perceive the textbook as the authority for content			0.398		
41	Faculty feels a need to cover content				0.734	
50	Students prefer activities and assignments with simple factual questions and answers				0.693	
54	Courses stress the acquisition of specific facts, ideas, and concepts				0.444	
47	Students expect that each question has a right answer					0.775
48	Students perceive faculty as authority figures					0.542

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The first factor was course structure and material (Table 14).This factor was the strongest factor, explaining the greatest percentage of variance of the critical thinking barriers. Items loading on this factor included seven items. They were courses are not appropriate for developing critical thinking; courses leading to memorization of knowledge; courses were not conducive to critical thinking; courses did not give importance to improving critical thinking; textbooks did not provide activities for improving critical thinking; teaching and learning were very much textbook dependent; and courses stressed the acquisition of specific facts, ideas, and concepts.

The second factor was lack of institutional framework/support. It yielded four items which included faculty not given information on improving critical thinking when they first start teaching; in-service training did not stress improvement of critical thinking; improving critical thinking was not included in supervisors' observations; and faculty feared administrative disapproval of not covering content.

Third factor was classified as students' characteristics. This factor also had four items. They were students lacked experience in improving or using critical thinking in school; students lacked interest in critical thinking activities; students lacked needed background for improving critical thinking, and students were afraid of being incorrect.

Factor four, time limitation, yielded five items. These included supervisors forced faculty to cover content; course content was highly structured; faculty did not provide sufficient time for thinking in class; improving critical thinking had

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not been established as one of the school priorities; and course content was too loaded.

Faculty limitation was the fifth factor classified. This factor yielded four items and included: faculty did not often use different teaching methods, faculty did not have enough time to prepare activities that developed critical thinking, faculty did not possess enough teaching skills to foster critical thinking, and faculty tests did not stress critical thinking.

Sixth factor was following a figure head. This factor had three items and included: faculty believed only certain students can perform higher order thinking, faculty was uncomfortable with questions that had no obvious answer, and students perceived the textbook as the authority for content.

Factor seven was encouraging inappropriate learning styles. This factor also had three items which included: faculty felt a need to cover content; students preferred activities and assignments with simple factual questions and answers; and courses stressed the acquisition of specific facts, ideas, and concepts.

The last factor was desire for good grades. Two items emerged from this factor. They were students expected that each question had a right answer, and students perceived faculty as authority figures.

Question Four: Is there a significant difference in perceptions of critical thinking between nursing faculty of NTCs and public universities?

This section answered research question four above. The results are presented below.

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Table 15: Comparison of perception of Nursing Faculty in Universities and NTCs

Variable	NTC					UNIVERSITY				
	SA N(%)	A N(%)	U N(%)	D N(%)	SD N(%)	SA N(%)	A N(%)	U N(%)	D N(%)	SD N(%)
Critical thinking (CT) is discipline specific	0(0.0)	4(40)	2(20.0)	0(0.0)	4(40.0)	22(22.9)	34(34.5)	13(13.5)	17(17.7)	10(10.4)
CT does not involve affective domain of learning	0(0.0)	0(0.0)	2(20.0)	2(0.0)	6(60.0)	4(4.2)	11(11.5)	15(15.6)	37(38.5)	29(30.2)
CT involves only cognitive domain of learning	1(10.0)	0.(0.0)	0(0.0)	4(40.0)	5(50.0)	12(12.5)	14(14.6)	9(9.4)	35(36.5)	26(27.1)
CT is essential in making clinical judgments	8(80.0)	2(20.0)	0(0.0)	0(0.0)	0(0.0)	69(71.9)	22(22.9)	4(4.2)	1(1.0)	0(0.0)
CT is needed for daily problem solving	7(70.0)	2(20.0)	0(0.0)	1(10.0)	0(0.0)	56(58.3)	29(30.2)	4(4.2)	5(5.2)	2(2.1)
CT is needed for content to be learned better	5(50.0)	5(50.0)	0(0.0)	0(0.0)	0(0.0)	47(49.0)	38(39.6)	6(6.3)	5(5.2)	0(0.0)
CT is needed to transfer knowledge between courses	5(50.0)	4(40.0)	1(10.0)	0(0.0)	0(0.0)	38(39.6)	47(49.0)	8(8.3)	2(2.1)	1(1.0)
Learning the content is more important than CT	0(0.0)	1(10.0)	0(0.0)	0(40.0)	5(50.0)	4(4.2)	9(9.4)	7(7.3)	44(45.8)	32(33.3)
Active learning fosters CT	4(40.0)	5(50.0)	1(10.0)	0(0.0)	0(0.0)	34(35.4)	48(50.0)	7(7.3)	4(4.2)	3(3.1)
No need to spend time on CT	0(0.0)	0(0.0)	0(0.0)	4(40.0)	6(60.0)	4(4.2)	5(5.2)	7(7.3)	32(33.3)	48(50.0)

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Table 15 Continued

CT is learned naturally	0(0.0)	1(10.0)	0(0.0)	6(60.0)	3(30.0)	3(3.1)	17(17.7)	14(14.6)	44(45.8)	18(18.8)
Faculty to incorporate CT in teaching strategies	8(80.0)	2(20.0)	0(0.0)	0(0.0)	0(0.0)	53(55.2)	34(35.4)	4(4.2)	2(2.1)	3(3.1)
Faculty to share teaching philosophies on CT with students	5(50.0)	4(40.1)	0(0.0)	1(10.0)	0(0.0)	33(34.4)	44(45.8)	13(13.5)	5(5.2)	1(1.0)
CT skills are only useful when dealing with complex nursing problems	0(0.0)	1(10.0)	1(10.0)	2(20.0)	6(60.0)	9(9.4)	9(9.4)	8(8.3)	47(49.0)	23(24.0)
Nursing students have necessary characteristics to respond favourably to teaching and learning strategies that foster CT	4(40.0)	5(50.0)	0(0.0)	1(10.0)	0(0.0)	20(20.8)	46(47.9)	15(15.6)	12(12.5)	3(3.1)
Nursing students need to be supported to practice CT skills	7(70.0)	2(20.0)	0(0.0)	1(10.0)	0(0.0)	40(41.7)	46(47.9)	5(5.2)	3(3.1)	2(2.1
Nursing students should be taught CT as a course	3(30.0)	7(70.0)	0(0.0)	0(0.0)	0(0.0)	26(27.1)	41(42.7)	15(15.6)	11(11.5)	3(3.1)
CT decreases clinical errors	3(30.0)	7(70.0)	0(0.0)	0(0.0)	0(0.0)	48(50.0)	31(32.3)	10(10.4)	7(7.3)	0(0.0)
CT engages staff in care transformation	5(50.0)	5(50.0)	0(0.0)	0(0.0)	0(0.0)	24(25.0)	57(59.4)	10(10.4)	2(2.1)	2(2.1)
Faculty is responsible and accountable for development of CT in students	3(30.0)	3(30.0)	2(20.0)	2(20.0)	0(0.0)	26(27.1)	46(47.9)	14(14.6)	7(7.3)	3(3.1)
CT is an important component of	9(90.0)	1(10.0)	0(0.0)	0(0.0)	0(0.0)	51(53.1)	37(38.5)	5(5.2)	2(2.1)	1(1.0)

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Table 15 Continued

professional practice										
CT improves the clinical competence of nurse practitioners	6(60.0)	4(40.0)	0(0.0)	0(0.0)	0(0.0)	54(56.3)	36(37.5)	4(4.2)	2(2.1)	0(0.0)
CT is vital to evidence based nursing practice	8(80.0)	2(20.0)	0(0.0)	0(0.0)	0(0.0)	46(47.9)	41(42.7)	7(7.3)	1(1.0)	1(1.0)
Ability to think critically is considered essential skill of nursing practice for comp? nursing practice	6(60.0)	4(40.0)	0(0.0)	0(0.0)	0(0.0)	58(60.4)	32(33.3)	3(3.1)	1(1.0)	2(2.1)

Key:

SA- Strongly Agree A-Agree U-Undecided D-Disagreed SD-Strong Disagree

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Table 15 summarises the comparison of perception of nursing faculty in universities and NTCs. Nurse educators in universities had positive perceptions when compared to faculty in NTCs. For example, when it came to the perception that critical thinking did not involve affective domain of learning, none of faculty from universities agreed, while 15.7% of faculty from NTCs agreed. Similarly, 90% of faculty from universities disagreed that critical thinking involved only cognitive domain of learning but 63.6% from the NTCs agreed. This trend commonly permeated the perceptions of faculty when the two groups are compared (see table 15).

Table 16: Comparison of Perception of Nursing Faculty in Universities and NTCs Using Independent t-test

Category of School	N	M	SD	t	df	P-V	95% CI	
							Lower	Upper
Universities	10	35.4	8.91	2.74	104	0.007	1.97	12.37
NTCs	96	28.2	7.77					

To compare the perceptions of the two classes of faculty–those in NTCs and those in universities, an independent t-test (see table 16) was run to compare the means score of the two categories. There was a significant difference between the perception of nurse educators in public universities (M=35.4, SD=8.91) and nurse educators in NTCs (M=28.2, SD=7.77), (t-value of 2.74, df = 104, p=0.007).

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Further Comments (Optional) from Participants

The research provided an opportunity for any participant who wished to share any further opinions about critical thinking to do so. This was captured as Section E. Participants were asked to provide further comments about critical thinking. The following themes emerged:

1. The educational system in Ghana (from basic to tertiary level) promotes rote learning.
2. Critical thinking should be incorporated in the educational system of Ghana right from the basic level to tertiary level.
3. Nursing care in Ghana is mechanical and does not encourage critical thinking.
4. Classes are too large to support the promotion of critical thinking.
5. Seminars or workshops should be organized for nurse educators.
6. Critical thinking should be made a topmost priority.
7. Critical thinking will lead to autonomy of nursing in Ghana.
8. Critical thinking will improve nursing care in Ghana.

Discussion

This section discusses the findings of the study as they related to the four research questions. The purpose of this study was to assess the nursing faculty's perception of critical thinking. To address the issue of nursing faculty's perception of critical thinking, the researcher attempted to answer the following questions:

1. What is the perception of nursing faculty about critical thinking?

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2. What instructional strategies do nursing faculty use to promote the development of critical thinking in their students?
3. What are the barriers that hinder nursing faculty from fostering critical thinking in students?
4. Is there a significant difference in perceptions of critical thinking between nursing faculty of NTCs and public universities?

Perception of Critical Thinking

This subsection attempts to find answers to the first research question, what is the perception of nursing faculty about critical thinking? In relation to the definition of critical thinking, the major finding was that none of the faculty gave a clear, concise definition that captured all the various aspects of critical thinking as provided by Scheffer and Rubenfeld (2000). A few faculty (8.5%) did not respond to this question. However, most were able to provide some attributes of critical thinking. This might be as a result of the lack of consensus among authors about the definition of critical thinking. This was similar to Allen et al. (2004) who asserted that there are contradictions in the definition of critical thinking. Some individuals defined critical thinking based on its attributes. One other important finding was that only 4.7% of participants gave attributes of critical thinking definition that appeared in both cognitive and affective aspects of critical thinking per the definition of Scheffer and Rubenfeld (2000). This indicated that few faculty considered critical thinking to be both affective and cognitive. The consequence may be that faculty are not able to foster the development of critical thinking in students. This is inconsistent with the training of nurses which is

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supposed to be holistic. The researcher has not found any professional development program that specifically helps to develop the critical thinking skills of nurse educators in Ghana. Owing to this, only few Ghanaian nurse educators possess the right perception to foster critical thinking. This is similar to some earlier studies. Mangena and Chabeli (2005) reported that one of the challenges to the development of critical thinking in students resulted from the fact that nurse educators themselves were not knowledgeable about critical thinking.

Of importance was the amount of emphasis faculty placed on cognitive domain (82 attributes). This suggested that much attention is devoted to the development of skills (cognitive) and knowledge acquisition to the neglect of developing the critical thinking attitude. This contrasted with the opinion of authors of critical thinking who recognized attitude as an essential attribute to critical thinking (Bailin et al., 1999; Ennis, 1985; Facione 1990, 2000; Halpern, 1998; Paul, 1992). This suggests that nursing in Ghana is still task-oriented with less emphasis on meeting the individual client's needs and expectations. Another important finding was that analysis (31 occurrences) was the most frequently referred to attribute in the cognitive aspect. This finding is not new. Turner (2005) reported that from 1992 to 2002 the most frequently referred to attribute in the nursing literature was analysis with reasoning being second. In addition, this is similar to Turner's report that analysis was a stable attribute.

Another finding was that faculty referred to some attributes that did not fall under Scheffer and Rubenfeld's (2000) definition of critical thinking. Problem solving was the most frequently identified attribute in this category. This is not

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surprising. Critical thinking is often described as problem solving. However, it is not every critical thinking process that is intended to resolve a problem. Meanwhile, the attributes that appeared in others (see table 4.7) are captured in other authors' definitions. This finding was similar to Turner (2005) who reported that there were many attributes with surrogate terms of critical thinking in the nursing literature.

The perception that critical thinking was discipline specific but must be taught as a course is an important findings. This sounds contradictory. This is because individuals who perceived critical thinking as discipline specific also believed that it should be incorporated in courses. However, there are three schools of thought when it comes to how critical thinking should be taught. The first view is that critical thinking should be taught as a separate course. The second is that critical thinking should not be taught as a separate course but incorporated in all courses. The last view is that critical thinking should be taught as a course and also incorporated in other courses. It therefore appears that the nurse educators in this study supported critical thinking as discipline specific but want it taught as a separate course. This is congruent with Ennis (1997) who argued for the third approach for the teaching of critical thinking where it is taught as a separate course and at the same time incorporated into other courses.

The perception of faculty that critical thinking was essential in making clinical judgments, vital to evidence-based nursing practice and essential skill of nursing practice for competent nursing practice is not new. National League for Nursing (2006) had cited critical thinking as essential component for good clinical

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practice. Similarly, Ireland (2008) also argued that critical thinking is necessary for evidence-based practice. Toofany (2008) had asserted that the ability to critically evaluate information for the purpose of rendering healthcare was a prerequisite for modern nurses in this complex and changing healthcare environment.

The findings that active learning fosters critical thinking, faculty should incorporate critical thinking in teaching strategies, faculty should share teaching philosophies on critical thinking with students, and nursing students need to be supported to practice critical thinking skills are important. These findings suggested that faculty recognized their roles as a significant determinant in promoting the development of critical thinking in students. Billings and Halstead (2009), and DeYoung (2009) cited active learning in the promotion of critical thinking in students. Billings and Halstead suggested incorporation of critical thinking in teaching strategies. Brighan, 1993 (as cited in Billings & Halstead, 2009) asserted that faculty should share teaching philosophies on critical thinking with students. Similarly, DeYoung (2009) asserted that nursing students need to be supported to practice critical thinking skills.

Another important finding was the perception that nursing students have necessary characteristics to respond favorably to teaching and learning strategies that foster critical thinking. In Ghana, candidates applying to nursing training programs must attain a minimum age of 18 years. The constitution of Ghana considers citizens 18 years and above as adults. Nursing students in Ghana are considered adults. Knowles (1984) asserted that adults have unique way of

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learning that is different from children. Mangena and Chabeli (2005) described nursing students as self-directed adults who decided to enter nursing programs. The finding that faculty is responsible and accountable for development of critical thinking in students is important. This is similar to Billings and Halstead (2009) and DeYoung (2009).

The finding that critical thinking involved both affective and cognitive domains of learning was important. This was inconsistent with other findings in this study where the nurse faculty's definitions did not comprehensively capture the two perspectives of critical thinking. Only few of the nurse educators incorporated affective aspect into the definition of critical thinking. Less than 5% of faculty gave attributes of critical thinking that appeared both in the cognitive and affective aspects. The inconsistencies appear to suggest lack of clear understanding of what constitutes critical thinking. However, the finding that critical thinking is both affective and cognitive is consistent with many authors of critical thinking (Facione, 1990; Paul, 1992; Scheffer & Rubenfeld, 2000).

The disagreement that there is no need to spend time on critical learning and that critical thinking is learned naturally is not new. Paul and Elder (2007) identified one of the problems of fostering critical thinking was that it is considered as natural and that everybody thinks. The view by faculty that critical thinking skills are not only useful when dealing with complex nursing problems is important. A critical thinker applies his/her principled criteria to issues even if they considered the issues as minor.

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Teaching Methods used to Promote Critical Thinking

The most important finding in this section was 41.5% of faculty perceived lecture as a teaching method that promoted the development of critical thinking in students. This finding is very interesting as lecture format is a passive teaching method. It does not encourage active participation of students in the teaching and learning process. Therefore for more than one-third of nurse educators in this study to consider it as a teaching method that promoted critical thinking is intriguing. This may be a further indication that nurse educators lack the requisite knowledge to promote critical development in students. This is similar to Paul, Elder, and Bartell (1997, as cited in Thompson, 2011) who reported that a number of instructors included promotion of critical thinking skills as a learning outcome but could not define critical thinking. Similarly, the finding contrasts Brown, Kirkpatrick, Greer, Matthias, and Swanson (2009) who asserted that traditional teaching methods do not promote active learning and critical thinking. Similarly, Candela et al. (2006) reported that educators are comfortable with the traditional lecture format and are unwilling to change.

However, the findings showed that different teaching methods were employed by nurse faculty to promote critical thinking in students. More than 50% of nurse faculty reported using five different teaching methods. If these different methods are used effectively by nurse faculty then the future of nursing education in Ghana is bright. The use of different methods for instructions has been reported as the best method of promoting critical thinking in students (Brown et al., 2009) because students have different learning styles and needs

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(Billings & Halstead, 2009). Therefore employing different teaching methods would meet different students' needs and expectations. Of equal pertinence is the finding that 83% and 78.3% of nurse faculty use problem-based learning and case study respectively to foster the development of critical thinking in students. Case study is recognized as problem-based learning and that may explain the closeness of the responses to these two methods. Nurse faculty who reported using problem-based learning may most likely be using case study. Another important finding was that Socratic questioning was the least used by nurse faculty in Ghana. This may be as a result of the fact that nurse educators in Ghana are not familiar with Socratic questioning. In addition, it is a not a simple skill to develop. Brown et al. (2009) asserted that Socratic questioning is a difficult skill to develop, and support and guidance are needed for it to succeed. Equally pertinent was the finding that 94% of faculty used discussion to promote the development of critical thinking in their students. Discussion has been cited as an effective teaching method of promoting critical thinking (Bligh, 2000, as cited in Christine & Rysavy, 2012). However, this researcher's experience in both NTCs and universities as a student suggests that discussion may not be efficiently employed. Challenges such as large classes may be a major hindrance to the use of discussion. Bell et al. (2013) reported large classes as a major problem in some Ghanaian universities. The low usage (30.2%) of concept mapping by nurse educators was not surprising. Giving the experience of this researcher, it is doubtful whether most nurse educators in Ghana are familiar with concept mapping. This researcher has never witnessed its use by any nurse educator in

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Ghana. What is common in Ghana is the use of standardized nursing care plans. Even nursing care plans are not being used by almost all Ghanaian hospitals. The nursing care plan has been used to determine learners' capacity to evaluate and prioritize patients' needs but some asserted that critical thinking has been hampered by many standardized care plans available (Billings & Halstead, 2009). Rather than using traditional care plans, concept mapping has been proposed as an effective method of fostering critical thinking in students.

The finding that all (100%) of the nurse educators used discussion in teaching students is important. This finding indicated a shift from the use of lecture (95.3%). Case study (80.2%) and problem-based learning (70.8%) were also often used by the respondents to teach. The method of teaching used least often was reflective journaling (16%). Less than a third used Socratic questioning (28.3%) and seminar with 29.2% in teaching. The less frequent use of reflective journaling, Socratic questioning, and seminar may be a result of lack of familiarity with those methods.

Teaching Methods Often Used by Faculty

Discussion was the teaching method most frequently used (75.5%) by nurse educators. In this study, 69.8% of nurse educators reported using lecture which was second to the use of discussion. This indicated that nurse educators in this study used discussion more than any other teaching methods. This contrasts with the existing literature. Some authors have reported that lecture method was the most often used method in the classroom (Barnes, 1983, as cited in Billings & Halstead, 2009; DeYoung, 2009).

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Meanwhile, the remaining methods of teaching apart from discussion and lecture received little attention by the faculty. The finding showed that the methods that received the least attention included simulation (2.8%), brainstorming (2.8%), Socratic questioning (3.8%), seminar (3.8%) as well as demonstration (5.7). This indicated that nurse educators do not use different methods often. This suggested that different learning styles of students are not being considered in the teaching and learning process. Another suggestion is that the educators may have not learned about these methods adequately and are therefore not comfortable using them.

Barriers to Critical Thinking

Eight factors emerged from the factor analysis test. These included course structure and material, lack of institutional framework/support, students' characteristics, time limitation, faculty limitation, following a figure head, encouraging inappropriate learning styles, and desire for good grades.

Barriers to promotion of critical thinking in nursing students identified in this study were faculty-related. These faculty-related barriers included the frequent use of lecturing by educators. The study identified the frequent use of lecturing by educators, faculty's tests not stressing critical thinking; inadequate time for students to think in class, the need to cover content, educators not using varieties of teaching methods, and faculty not having enough time to prepare activities that develop critical thinking as some of the barriers of critical thinking development in students. In Ghana, nursing programs have large classes. Therefore to cover content lecture becomes obvious choice.

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Several authors have reported that some faculty-related factors hinder critical thinking promotion. DeYoung (2009) asserted that educators frequently use lecture format in teaching. It was asserted that faculty's tests do not stress critical thinking because they use multiple choice questions which are at low level of complexity (DeYoung, 2009). Raymond and Profetto-McGrath (2005) and Shell (2001) reported inadequate time in the classroom as one of the barriers to critical thinking development. Fitzpatrick (2005) asserted that faculty makes every effort to include all vital information into their lectures in order to cover content. Raymond and Profetto-McGrath (2005) reported that faculty do not have enough time to prepare activities that develop critical thinking. Bell et al. (2013) reported large classes as a major problem in some Ghanaian universities.

Of importance was the finding that teaching was very much textbook dependent. The faculty's claim that critical thinking activities are sometimes not included in textbooks suggested the flaws making teaching and learning textbook dependent. Some textbooks are designed to cover content. Also suggests they are not critically evaluating text books before selection.

Other important barriers identified in this study were that students: fear being incorrect, expect that each question should have a right answer, perceive faculty as authority figures, perceive textbooks as the authority for content, prefer activities and assignments with simple factual questions and answers, lack needed background for improving critical thinking, lack interest in critical thinking activities, and lack experience in improving or using critical thinking. These barriers are students-related. Some of these findings are not new. Shell (2001)

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reported students-related barriers as the greatest barriers perceived by nurse educators. The barriers of students afraid of being incorrect, expecting that each question should have a right answer, perceiving faculty as authority figures, perceiving textbooks as the authority for content, preferring activities and assignments with simple factual questions and answers are consistent with some studies. Mangena and Chabeli (2005) reported low level of education as background (lack of needed background) that hindered the promotion of critical thinking. Kowalczyk et al. (2012) and Shell again reported that students lacked interest (motivation) in critical thinking activities as one of the students-related barriers.

The study identified barriers that were course-related. These barriers included course stressing the acquisition of specific facts, ideas and concepts, content being highly structured, courses encouraging the memorization of knowledge, and course content being too loaded. Course-related barriers could also be faculty-related because courses are supposed to be designed by faculty. However in Ghana, curriculum with courses for the general nursing program is designed by the Nursing and Midwifery Council. The NTCs in particular follow this curriculum. The universities have flexibility in designing curricula to fit their unique circumstances.

The study identified some obstacles to the development of critical thinking that are as a result of limited support from administration and policy makers in the arena of nursing education. These included faculty fearing administrative disapproval of not covering content, critical thinking improvement not being

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included in supervisors' observation, faculty not given information on improving critical thinking when they first start teaching, in-service training not stressing improvement of critical thinking, supervisors forcing faculty to cover content, improving critical thinking not being established as one of the school priorities as well as administration and supervisors not providing support for improving critical thinking. These findings indicated that critical thinking is not a priority for authorities and policy makers in the arena of nursing education.

This is similar to some previous studies. Kowalczyk et al. (2012) presented similar hindrances to implantation of critical thinking. These included inadequate support from management, and lack of funding for tools to employ critical thinking strategies. Additionally, Raymond and Profetto-McGrath (2005) reported similar hindrances to the institutionalization of new teaching methods. These included workload that was demanding, stern adherence to content coverage, not permitting enough time for innovative ideas, and colleague faculty who resist critical thinking. Nevertheless, Raymond and Profetto-McGrath identified some constructive factors that contrast with this study. These included prospects for faculty development, support from administration, liberty to try fresh thoughts, and mentorship. However, these constructive factors identified by Raymond and Profetto-McGrath's (2005) study could be due to the fact that their site was in Western Canada. Resources for educators in an advanced country like Canada could be better than that of a developing country like Ghana.

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Comparison of Perception of Faculty in NTCs and Universities

One of the major findings of this study was that there was a significant difference in perceptions of critical thinking between nurse educators in public universities and nurse educators in NTCs (p=0.007). This suggested that there is a relationship between place of work and perception of critical. The nurse educators working at the universities had more positive perceptions of critical thinking than educators employed in the NTCs (see table 15). This result is not surprising. The minimum qualification for universities in Ghana is a master degree. However, first degrees and sometimes diploma holders held teaching appointments in the NTCs as shown by the demographic characteristics of this study (see table 2). This finding is similar to Kowalczyk et al. (2012) who reported that educators with higher educational qualification were more receptive to critical thinking promotion strategies.

Further Comments (optional) from Participants

Several themes emerged from further comments made by participants. These included challenges in the Ghanaian educational system in Ghana from basic to tertiary levels. Participants believed that the educational system does not promote critical thinking. For example, it is a common knowledge in Ghana that students are rewarded for reproducing text given by instruction in what is known commonly as “chew and pour”. Once these students move to nursing programs their learning styles become difficult to change.

Another theme that emerged is that nursing service in Ghana is mechanical or task-oriented. Owing to this, critical thinking is not encouraged

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leading to lack of autonomy of nursing in Ghana. One more theme that emerged was the need for professional development programs for nurse educators. This suggested that nurse educators feel inadequate in fostering critical thinking skills in students. Participants believed that seminars or workshops should be organized to sensitize nurse educators on critical thinking issues.

Summary

This chapter presented the findings of the study. These include the majority of nurse educators were unable to give complete definition of critical thinking. However, the majority of the educators had positive perceptions of critical thinking. Barriers to the promotion of critical thinking identified included course structure and material, lack of institutional framework, students' characteristics, time limitation, faculty limitation, and desire for grades. These findings were similar to most of the literature.

The ensuing chapter summarizes and provides a conclusion to the report. It also presents some recommendations.

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CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter concludes the report. It is divided into three sections. The first section dealt with the summary of the study. The second section covered the conclusion of the study. The last section provided recommendations.

Summary

The ability to critically evaluate information for the purpose of rendering healthcare is a prerequisite for modern nurses in this complex and changing healthcare environment. Caring for multiple patients with the similar health needs necessitates nurses to have a high level of critical thinking skills and a critical thinking disposition. Nursing faculty is expected to prepare nurses to meet the challenges of current and future health care problems. The Nursing and Midwifery Council of Ghana has incorporated critical thinking into its curricula with one of the program outcomes being to foster critical thinking skills in nursing in Ghana. However, challenges in the nursing educational system may erode the attempt to develop critical thinking skills of nursing students. The purpose of this study was to assess the nursing faculty's perception of critical thinking.

A descriptive cross-sectional quantitative study design was used in carrying out this study. The research questions were: what is the perception of nursing faculty about critical thinking? What instructional strategies do nursing

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faculty use to promote the development of critical thinking in their students? What are the barriers that hinder nursing faculty from fostering critical thinking in students? Is there a significant difference in perceptions of critical thinking between nursing faculty of NTCs and public universities? The study utilized a cluster sampling technique to select 163 nurse educators from nursing educational institutions from November, 2013 to February, 2014. The response rate was 65% (106 participants). The data collection tool was a self-administered questionnaire. This tool measured the demographic data, faculty's perception of critical thinking concept, teaching methods used in fostering critical thinking in students as well as barriers to critical thinking. The reliability of the tool was evaluated using Cronbach's reliability coefficient alpha. The values were 0.682 for the perceptions of faculty on the concept of critical scale, 0.723 for teaching strategies scale as well as 0.88 for barrier scale. Factor analysis and t-test were used to analyze summarize factors that hinder the promotion critical thinking and compare the differences in the perceptions of the nurse educators in universities and NTCs respectively.

Key Findings

The major findings of this study were:

1. The majority (95.3%) of nurse educators did not understand the concept of critical thinking. They were unable to give complete definition of critical thinking.

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2. The majority of nurse educators had positive perceptions of critical thinking. The nurse educators (82.7%) believed that critical thinking should be introduced as a separate course.
3. Barriers to the promotion of critical thinking identified included course structure and material: courses and textbooks encouraged the memorization of facts; lack of institutional framework: no program was available to develop critical thinking skills of educators; students' characteristics: students lacked the needed experience to foster critical thinking skills; time limitations: teaching and learning that was restrictive; faculty limitations: educators lack the teaching skills to foster critical thinking skills; and desire for good grades.
4. Nurse educators in universities had a more positive perception of critical thinking than those in the NTCs. Therefore, faculty in universities might be more receptive to integrating the concept of critical thinking into their teaching.

A review of the literature revealed similar findings.

Conclusions

Critical thinking is crucial in shaping healthcare providers, especially nurses to respond to the current complex health needs. Nursing in the 21st century is evolving. Yet, Ghana is using a nursing educational system that cannot result in good health outcomes. Nurse educators in Ghana do not understand critical thinking and are unable to incorporate critical thinking in the classroom. Nursing programs are not adequately preparing nurses with the necessary critical thinking

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skills required for a dynamic health care environment. Faculty in universities is more receptive to integrating the concept of critical thinking into their teaching. This researcher proposes first degree as the minimum entry requirement into professional nursing. Continuous professional programs in critical thinking should be instituted for nurse educators.

Recommendations

Based on the findings of this study, the following recommendations are made for the promotion of critical thinking development in students. First, the nurse educators' inability to recognize habits of mind (attitude) as a component of critical thinking can be addressed through training programs on critical thinking by the employers of these educators. These programs should be organized periodically to continuously refresh the minds of educators on the importance of critical thinking in nursing practice as well as innovative teaching strategies that enhance critical thinking.

Second, critical thinking should be introduced into nursing curriculum as a separate course to make it explicit in the curriculum. The course should be introduced at the beginning stage of the program. This would help to enhance the students' understanding of critical thinking as they progress through the program. This is because students can employ critical thinking in their daily activities only if they understand its concept. Additionally, critical thinking should be infused or immersed into all other courses. This would enhance the transferability of critical thinking skills across courses.

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Third, the educational level of nurse educator has an influence on whether he/she will be receptive to critical thinking and its teaching strategies. To this end, the minimum educational qualification of nurse educators in the NTCs should be an undergraduate degree and progressively made a master degree.

Fourth, authorities of nursing educational institutions and policymakers in nursing education such as the Nursing and Midwifery Council and Ministry of Health should prioritize critical thinking in the education of the Ghanaian nurse. To this end, policies and other documents on nursing education should explicitly incorporate critical thinking as a vital outcome of nursing education. These bodies should also develop tools in assessing critical thinking in students and educators. Additionally, a clear definition of critical thinking taking into consideration the Ghanaian context should be adopted.

Implications for Further Research

This study should be replicated to assess students' perception of critical thinking. This will help to identify the perception of students in order to fashion out teaching strategies that address their expectations and needs.

Additionally, a study that utilizes the qualitative design to directly observe the critical thinking teaching strategies that are used should be conducted. The design for the proposed study should include evaluation of assessment tools such as theory and practical examination questions. This is because even though nurse educators reported using different teaching methods, nursing care in Ghana continues to receive an unfavorable response from the public. The question of whether nurse educators are employing these teaching strategies appropriately

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arises. Therefore, direct observation would enable the evaluation of these methods for their appropriate use.

Furthermore, other studies on critical thinking skills of students and educators are necessary. In addition, studies on cultural influences on critical thinking and developing critical thinking skills assessment tools that take into consideration the Ghanaian context are required.

Lastly, assessment of critical thinking among nurses at the clinical setting should be carried out. This will help understand the application of critical thinking skills in the clinical setting and subsequently devise strategies to plan continuous professional development programs for these clinicians.

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APPENDIX: A

UNIVERSITY OF CAPE COAST

DEPARTMENT OF NURSING

Telephone: 233-3321-33342 33372
Telex: 2552, UCC, GH.
Telegrams & Cables: University, Cape Coast

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref.: DN/ 77/Vo.1/156

Your Ref.:

26th November, 2013

The Principal
Nkawkaw N T C
Nkawkaw

Dear Sir/ Madam,

INTRODUCTORY LETTER

Mr. Christian Makafui Boso is a second year graduate student at the School of Nursing and as part of the programme he is conducting a research for his thesis on the topic **"Nursing Faculty's Perception of Critical Thinking in Ghana"**.

We would be grateful if you could give him all the necessary assistance to enable him assemble the relevant data that he would require for his work.

Thank you.

Yours faithfully

Dr. Mate Siakwa
Head

Permission granted
Tutors to help accommodate
and assist him.
Thanks

10/12/13.

PRINCIPAL
HOLY FAMILY NURSES TRAINING
SCHOOL
NKAWKAW

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APPENDIX B:
Nursing Faculty's Perception of Critical Thinking Questionnaire

Please respond to the following questions below by ticking or writing in your answer where appropriate

Section A: Demographic Profile

1. What is your gender?
   a) Male
   b) Female
2. Age
   a) 21 – 30 years
   b) 31 – 40 years
   c) 41 – 50 years
   d) 51 years and above
3. What is your highest level of education you have completed?
   a) Diploma (please specify discipline)……
   b) First Degree (please specify discipline)……..
   c) Masters degree (please specify discipline)……..
   d) Doctorate (please specify discipline)……..
   e) Other (please specify) ……..
4. In what type of educational institution do you currently teach?
   a) Nurses' Training College
   b) University
5. In which educational institution do you have previous teaching experience?
   a) Nurses' Training College
   b) University
   c) Other (please specify)…….
6. How many years have you been teaching nursing students? ……years
7. What is your rank / position……..

Section B: Perception of critical thinking

8. What is your definition of critical thinking?

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Below are the statements which refer to your perceptions of critical thinking. Please read each statement. Using the five–point scale, circle the number that best indicates the strength of your agreement or disagreement with the statement.

(1) Strongly Agree (2) Agree (3) Undecided (4) Disagree (5) Strongly Disagree

9. Critical thinking is discipline-specific	1	2	3	4	5
10. Critical thinking does not involve affective domain of learning	1	2	3	4	5
11. Critical thinking involves only cognitive domain of learning	1	2	3	4	5
12. Critical thinking is essential in making clinical judgments	1	2	3	4	5
13. Critical thinking is needed for daily problem solving.	1	2	3	4	5
14. Critical thinking is needed for content to be learned better.	1	2	3	4	5
15. Critical thinking is needed to transfer knowledge between courses.	1	2	3	4	5
16. Learning the content is more important than critical thinking.	1	2	3	4	5
17. Active learning fosters critical thinking.	1	2	3	4	5
18. There is no need to spend time on critical thinking.	1	2	3	4	5
19. Critical thinking is learned naturally.	1	2	3	4	5
20. Faculty should incorporate critical thinking in their teaching strategies.	1	2	3	4	5
21. Faculty should share their teaching philosophies on critical thinking with students.	1	2	3	4	5
22. Critical thinking skills are only useful when dealing with complex nursing problems.	1	2	3	4	5
23. Nursing students have the necessary characteristics to respond favorably to teaching and learning strategies that foster critical thinking.	1	2	3	4	5
24. Nursing students need to be supported to practice critical thinking skills.	1	2	3	4	5
25. Nursing students should be taught critical thinking as course.	1	2	3	4	5
26. Critical thinking decreases clinical errors.	1	2	3	4	5
27. Critical thinking engages staff in care transformation.	1	2	3	4	5
28. Faculty is responsible and accountable for development of critical thinking in students.	1	2	3	4	5
29. Critical thinking is an important component of professional practice.	1	2	3	4	5
30. Critical thinking improves the clinical competence of nurse practitioners.	1	2	3	4	5
31. Critical thinking is vital to evidence-based nursing practice.	1	2	3	4	5
32. The ability to think critically is considered an essential skill of nurse practitioners for competent nursing practice.	1	2	3	4	5

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Section C: Critical thinking and teaching strategies

33. What type of teaching strategies do you use in developing critical thinking in your students?

	YES	NO
a) Lecture	☐	☐
b) Discussion	☐	☐
c) Reflective journaling	☐	☐
d) Reflective learning	☐	☐
e) Simulation	☐	☐
f) Concept mapping	☐	☐
g) Problem-based learning	☐	☐
h) Case study	☐	☐
i) Socratic questioning	☐	☐
j) Seminar	☐	☐
k) Role play	☐	☐

l) Other (please specify) .....

34. Which of the following teaching methods do you employ in your teaching? Choose all that you employ.

	YES	NO
a) Lecture	☐	☐
b) Discussion	☐	☐
c) Role play	☐	☐
d) Concept mapping	☐	☐
e) Simulation	☐	☐
f) Reflective journaling	☐	☐
g) Problem-based learning	☐	☐
h) Case study	☐	☐
i) Socratic questioning	☐	☐
j) Seminar	☐	☐
k) Role play	☐	☐

l) Other (please specify) .....

35. What teaching methods do you use most often in your teaching?

.....

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Below are the statements which refer to your perceptions of critical thinking. Please read each statement. Using the five–point scale, circle the number that best indicates the strength of your agreement or disagreement with the statement.

(1) Strongly Agree (2) Agree (3) Undecided (4) Disagree (5) Strongly Disagree

Section D: Barriers to critical thinking

Faculty-related barriers

36. Faculty uses lecturing strategy most often.	1	2	3	4	5
37. Faculty tests do not stress critical thinking.	1	2	3	4	5
38. Faculty does not provide sufficient time for thinking in class.	1	2	3	4	5
39. Faculty believes only certain students can perform higher order thinking.	1	2	3	4	5
40. Faculty is uncomfortable with questions that have no obvious answer.	1	2	3	4	5
41. Faculty feels a need to cover content.	1	2	3	4	5
42. Critical thinking skills and behaviours are difficult to teach and assess.	1	2	3	4	5
43. Faculty does not often use different teaching methods	1	2	3	4	5
44. Faculty does not have enough time to prepare activities that develop critical thinking.	1	2	3	4	5
45. Faculty does not possess enough teaching skills to foster critical thinking	1	2	3	4	5

Student-related barriers

46. Students are afraid of being incorrect.	1	2	3	4	5
47. Students expect that each question has a right answer.	1	2	3	4	5
48. Students perceive faculty as authority figures.	1	2	3	4	5
49. Students perceive the textbook as the authority for content.	1	2	3	4	5
50. Students prefer activities and assignments with simple factual questions and answers.	1	2	3	4	5
51. Students lack needed background for improving critical thinking.	1	2	3	4	5
52. Students lack interest in critical thinking activities.	1	2	3	4	5
53. Students lack experience in improving or using critical thinking in school.	1	2	3	4	5

Course-related barriers

54. Courses stress the acquisition of specific facts, ideas, and concepts.	1	2	3	4	5
55. Courses do not give importance to improving critical thinking.	1	2	3	4	5
56. Courses are not conducive to critical thinking.	1	2	3	4	5
57. Course content is highly structured.	1	2	3	4	5
58. Courses lead to memorization of knowledge.	1	2	3	4	5
59. Courses are not appropriate for developing critical thinking.	1	2	3	4	5

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Below are the statements which refer to your perceptions of critical thinking. Please read each statement. Using the five–point scale, circle the number that best indicates the strength of your agreement or disagreement with the statement.

(1) Strongly Agree (2) Agree (3) Undecided (4) Disagree (5) Strongly Disagree

60. Course content is too loaded.	1	2	3	4	5
Other factors as barriers					
61. Textbooks do not provide activities for improving critical thinking.	1	2	3	4	5
62. Teaching and learning are very much textbook dependent.	1	2	3	4	5
63. Faculty fears administrative disapproval of not covering content.	1	2	3	4	5
64. Improving critical thinking is not included in supervisors' observations.	1	2	3	4	5
65. Faculty is not given information on improving critical thinking when they first start teaching.	1	2	3	4	5
66. In-service training does not stress improvement of critical thinking.	1	2	3	4	5
67. Supervisors force faculty to cover content.	1	2	3	4	5
68. Improving critical thinking has not been established as one of the school priorities.	1	2	3	4	5
69. Administrators and supervisors do not provide support for improving critical thinking.	1	2	3	4	5

Section E:

70. If you have any other comments about critical thinking, please write them down.

.....

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THANKS FOR MAKING THIS PROJECT A SUCCESS!!!

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APPENDIX C:

Perception Scale

No.	Item	No. of Item	Cronbach's Alpha
1.	Critical thinking is discipline-specific		
2.	Critical thinking does not involve affective domain of learning		
3.	Critical thinking involves only cognitive domain of learning		
4.	Critical thinking is essential in making clinical judgments		
5.	Critical thinking is needed for daily problem solving		
6.	Critical thinking is needed for content to be learned better		
7.	Critical thinking is needed to transfer knowledge between courses		
8.	Learning the content is more important than critical thinking.		
9.	Active learning fosters critical thinking		
10.	There is no need to spend time on critical thinking.		
11.	Critical thinking is learned naturally	**24**	**0.682**
12.	Faculty should incorporate critical thinking in their teaching strategies.		
13.	Faculty should share their teaching philosophies on critical thinking with students.		
14.	Critical thinking skills are only useful when dealing with complex nursing problems.		
15.	Nursing students have the necessary characteristics to respond favorably to teaching and learning strategies that foster critical thinking.		
16.	Nursing students need to be supported to practice critical thinking skills		
17.	Nursing students should be taught critical thinking as course.		
19.	Critical thinking decreases clinical errors.		
19.	Critical thinking engages staff in care transformation.		
20.	Faculty is responsible and accountable for development of critical thinking in students.		
21.	Critical thinking is an important component of professional practice.		
22.	Critical thinking improves the clinical competence of nurse practitioners.		
23	Critical thinking is vital to evidence-based nursing practice.		
24	The ability to think critically is considered an essential skill of nurse practitioners for competent nursing practice.		

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Teaching Strategies Scale

No.	Item	No. of Item	Cronbach' s Alpha
1.	What type of teaching strategies do you use in developing critical thinking in your students? a) Lecture b) Discussion c) Reflective journaling d) Reflective learning e) Simulation f) Concept mapping g) Problem-based learning h) Case study i) Socratic questioning j) Seminar k) Role play		
2.	Which of the following teaching methods do you employ in your teaching? Choose all that you employ. a) Lecture b) Discussion c) Concept mapping d) Simulation e) Reflective journaling f) Problem-based learning g) Case study h) Socratic questioning i) Seminar j) Role play	**22**	**0.723**

Barriers Scale

No.	Item	No. of Item	Cronbach' s Alpha
1.	Faculty uses lecturing strategy most often.		
2.	Faculty tests do not stress critical thinking.		
3.	Faculty does not provide sufficient time for thinking in class.		
4.	Faculty believes only certain students can perform higher order thinking.		
5.	Faculty is uncomfortable with questions that have no obvious answer.		
6.	Faculty feels a need to cover content.		
7.	Critical thinking skills and behaviours are difficult to teach and assess.		
8.	Faculty does not often use different teaching methods		
9.	Faculty does not have enough time to prepare activities that develop critical thinking.		
10.	Faculty does not possess enough teaching skills to foster		

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	critical thinking		
11.	Students are afraid of being incorrect.		
12.	Students expect that each question has a right answer.		
13.	Students perceive faculty as authority figures.		
14.	Students perceive the textbook as the authority for content.		
15.	Students prefer activities and assignments with simple factual questions and answers.		
16.	Students lack needed background for improving critical thinking.		
17.	Students lack interest in critical thinking activities.	34	0.88
19.	Students lack experience in improving or using critical thinking in school.		
19.	Courses stress the acquisition of specific facts, ideas, and concepts.		
20.	Courses do not give importance to improving critical thinking.		
21.	Courses are not conducive to critical thinking.		
22.	Course content is highly structured.		
23.	Courses lead to memorization of knowledge.		
24.	Courses are not appropriate for developing critical thinking.		
25.	Course content is too loaded.		
26.	Textbooks do not provide activities for improving critical thinking.		
27.	Teaching and learning are very much textbook dependent.		
28.	Faculty fears administrative disapproval of not covering content.		
29.	Improving critical thinking is not included in supervisors' observations.		
30.	Faculty is not given information on improving critical thinking when they first start teaching.		
31.	In-service training does not stress improvement of critical thinking.		
32.	Supervisors force faculty to cover content.		
33.	Improving critical thinking has not been established as one of the school priorities.		
34.	Administrators and supervisors do not provide support for improving critical thinking.		

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APPENDIX: D

UNIVERSITY OF CAPE COAST

Institutional Review Board
School of Graduate Studies and Research

TELEPHONE: +233 42 32440-9 & 32480-9 Ext. 237
DIRECT: +233 42 35351 & 028 9670793(4)

TELEGRAM: UNIVERSITY, CAPE COAST.

C/O UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: UCC/IRB/4[A]
Your Ref:

23th May, 2014

Christian Makafui Boso
Department of Nursing
UCC

ETHICAL CLEARANCE –ID NO: UCCIRB: 23/05/14 (2)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted **Provisional Approval** for implementation of your research protocol titled:

"Nursing Faculty's Perception of Critical Thinking in Ghana."

This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol

.....
(Joseph C. Sefenu)
ADMINISTRATOR

cc: The Chairman, UCCIRB

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APPENDIX E

INFORMED CONSENT FORM

Title: Nursing Faculty's Perception of Critical Thinking in Ghana

Principal Investigator: Christian Makafui Boso

Address: Department of Nursing

University of Cape Coast

Cape Coast

General Information about Research

The purpose of this research project is to assess faculty's perception of critical thinking. The study involves eliciting information about the view of nurse faculty of critical thinking, barriers to the development of critical thinking in students, and institutional support for the promotion of critical thinking. Participants (selected through a cluster sampling techniques) of this study are expected to spend approximately 30 minutes to respond to a questionnaire. The questionnaire contains demographic information and likert-type scale questions that relate to the research questions.

Procedures

To find answers to some of these questions, I invite you to take part in this research project. If you accept, you will be required to fill out a survey which will be provided and collected by myself.

You are being invited to take part in this survey because I feel that your experience as a nurse faculty can contribute much to this issue.

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The questionnaire is in two sections. The sections: A and B contain questions on demographic data and perception of critical thinking respectively.

If you do not wish to answer any of the questions included in the survey, you may skip them and move on to the next question. The questionnaire will be distributed and collected by myself. The information obtained is considered confidential, and no one else except me will have access to your survey. The expected duration of the survey is about 30 minutes**.**

Possible Risks and Discomforts

The study process will not entail any harmful effects on participants.

Possible Benefits

There will be no financial reward for respondents. However, respondents may benefit from the results of the study since they are active participants in the nursing education system. Institutions involved in the study would be notified after the study.

Alternatives to Participation

There will be no introduction of any intervention/treatment to participants.

Confidentiality

Confidentiality will be ensured through the enforcement of anonymity of your responses (participants will not indicate their names on the questionnaires). Additionally, the names of participants will not be included in any report.

Compensation

There will be no compensation because the study will not involve any harmful process.

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Additional Cost

Apart from the time that will be used to respond to the questionnaire no other cost will be incurred by the participants.

Voluntary Participation and Right to Leave the Research

Participation in the study is voluntary. Participants can decide to withdraw without any penalty.

Contacts for Additional Information

If you have any question about the study you can contact the principal investigator, Christian Makafui Boso through 020-2780366 or email address christianboso@yahoo.co.uk. On any information about your right, contact the supervisors of this survey Dr. Mate Siakwa (020-5613404) and Prof. Janet Gross (0248911966).

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of University of Cape Coast (UCCIRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8:00 a.m. and 4:30 p.m. through the landlines 0332135351/0289670793(4) or email address: irb@ucc.edu.gh . You may also contact the Chairman, Prof. Albert A. Addo-Quaye through mobile number 0243-189593 when necessary.

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VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title nursing faculty's perception of critical thinking has been read by me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

_____ _____

Date of volunteer Name and signature or mark of volunteer

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