# Development of Critical Thinking in Nursing Students in the Classroom Setting

A Dissertation submitted

by

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This dissertation has been accepted by the faculty of

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# Dedication Page

This is dedicated to Steve, my husband, for not letting me quit.  You are my rock!!!!

Acknowledgement Page

I would like to first of all thank my God who was with me every step of the way throughout this process. Through the good times, and the bad, but You always brought me through. Secondly, I want to thank my husband, Steve. He has always been there for me through each one of my educational endeavors. He has always been supportive and encouraging. He never let me get down. I want to thank my boys, Jacob and Will for sticking with Mom even when she was stressed because of school. Thank you to all of my supportive committee, colleagues, and friends. Thank you for keeping me going on the down days and continuing to tell me that I could do this.

***I can do all things through Christ who strengthens me.***

Philippians 4:13

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## Abstract

Changes in the healthcare industry have created a climate where nursing no longer occurs only in the hospital, but occurs in more diverse settings. These changes have revealed a need for changes to occur in how nursing students are taught in the classroom, and how students develop critical thinking. Consequently, for these changes to occur it is important to examine the concept of critical thinking more closely, by viewing how critical thinking is developed in the classroom setting. Therefore, the purpose of this phenomenological qualitative research study was to identify the lived experiences of nursing educators assisting nursing students to develop critical thinking skills within the classroom at community college ADN programs in Nebraska. Nursing educators from six community colleges in the state of Nebraska who possessed a BSN, MSN or are making progress toward completing an MSN were emailed a link to a survey. Participants were asked survey questions that pertained to the lived experience of critical thinking, which included describing the meaning of critical thinking, teaching methods used to enhance critical thinking in the classroom, effectiveness of teaching methods, attributes necessary for students to be able to critically think, and challenges of integrating critical thinking into the classroom setting. Participant responses were analyzed which led to the development of themes for each sub question and central research question. Themes were compared to the operational definitions that were derived from the literature, which inadvertently led to the development of a model illustrating the lived experience of critical thinking in the classroom setting.

# Chapter I

## Introduction

### Background

Over the past several years the healthcare system has significantly changed due to technological advances, changing patient demographics, and an economic climate that has many patients and families postponing when they seek health care (Giddens, 2007). Advances in healthcare have increased individuals' longevity, which in turn has caused an increase in the incidence of chronic illness. Chronic illness is defined as a disease lasting three months or longer (National Health Council, n.d.). Chronic illness leads to increased hospital stays, and a need for further care after discharge. Nurses are now faced with making complex, critical decisions associated with the care of the sicker, frailer patients with chronic illness (IOM, 2011; Twibell, Ryan & Hermiz, 2005). Nurses work with much more sophisticated, life-saving technology, and more complex care requires a deep understanding and ability to think critically (IOM, 2011; Benner, Hughes & Sutphen, 2008; Wagner, 2014; Newton & Moore, 2013).

Nurses are filling primary care roles, helping patients manage chronic illnesses, thereby preventing acute care readmission and disease progression (IOM, 2011). The healthcare paradigm shift from a one-dimensional hospital setting to a multi-dimensional healthcare environment has exposed a critical deficiency in conventional nursing education (Candela, Dalley, & Benzel-Lindley, 2006; Wagner, 2014). Novice, or beginning nurses often do not possess the necessary critical thinking skills to provide safe, effective nursing care (Wilgis & McConnell, 2008). Nurses are expected to recognize when new patient problems arise and intervene appropriately. Novice

nurses have minimal decision-making skills and critical thinking ability (Wilgis & McConnell; Wettstein, Wilkins, Gardner, & Restrepo, 2011). The result of minimal critical thinking skills can lead to poor patient outcomes including injury or death (Wilgis & McConnell).

Institute of Medicine (IOM) (2003) notes more than 98,000 lives are lost annually due to medical mistakes. The Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine (IOM), highlights that nurses' education and job skills are tied to most health care quality measures and have been targeted for improvement of patient safety over the past few years (2011). Because of this, it is imperative nurses gain an understanding of complex needs of patients as well as deal with other complex issues like patient safety ( IOM; Ebright, Kooken, Moody, & Moza, 2006). Nurses are the largest segment of the health care workforce; therefore, nurses who are not equipped for complex and diverse health care settings are likely one of the reasons for increasing numbers of medical errors and fatalities, as well as increases in health care costs (IOM, 2003; 2011). Nurses are central to preventing medication errors, reducing rates of infection, and transitioning patients from hospital to outpatient settings (IOM). The changing nature of health care, along with the increasing technology and complexities of care have produced a demand for higher-order thinking (Jones & Brown, 1991; Thurmond, 2001; Newton & Moore, 2013). Within education, as well as nursing, it is essential to develop critical thinkers who can acclimate to different circumstances, problem solve, and utilize knowledge that allows for logical, analytical, and systematic thinking (Hassan & Madhum 2006; Newton & Moore, 2013). Additionally critical thinking is essential for the development of safe clinical practitioners (Schaber & Shanedling, 2012).

The nursing profession requires more education and preparation to assume new roles in response to rapidly changing health care settings and an evolving health care system (IOM, 2011; Newton & Moore, 2013). Improvements in existing nursing education systems have become necessary to ensure that the present-day and forthcoming generations of nurses can deliver safe, quality, patient-centered care across all settings (IOM). In response to these demands of an evolving health care system and meeting the changing needs of patients, nurses must achieve higher levels of education (IOM). Nursing is multifaceted and requires expanded ways of thinking and reasoning beyond the linear methods used in the past (Kern, Bush & McCleish, 2006; Wettstein et al., 2011). Nurses must master complex information and utilize technology while skillfully coordinating multiple healthcare experiences for patients (Hoffman, 2008; Newton & Moore, 2013). Multiple healthcare experiences may include working in various settings, some of which include outpatient surgery, home health, rural health clinics, and outpatient rehabilitation centers (Hoffman).

**Significance**

In the late 1980's the National League for Nursing (NLN) called for "re-examination of curricular structures and processes" in nursing education (National League for Nursing, 2003, p. 47). Curriculum transformation required schools of nursing to restructure and change the way nursing educators facilitated the learning process (NLN). Schools of nursing attempted to create innovative curriculums, but only rearranged where content was located (NLN). Consequently, nursing educators did not change the dynamics of the curriculum; but continued to teach as taught (Diekelmann, 2002). Nursing educators continued to teach based on a one-dimensional healthcare

system, instead of the multi-dimensional system which now exists (NLN). It is imperative that nursing students are taught to function in a rapidly changing healthcare environment where hospital stays are short, and complex care can be provided in multiple settings (NLN). Nursing students must learn to function effectively in unpredictable, complex, and flexible environments (NLN).

Critical thinking became a competency in nursing in the late 1980s (Raterink, 2008). The National League for Nursing's (NLN) Competency 1-Facilitate learning, states that nursing educators must "model critical and reflective thinking" and "create opportunities for learners to develop their critical thinking and critical thinking reasoning skills" (p.1). Literature has revealed lack of a clear definition of critical thinking, consequently making it difficult to evaluate critical thinking skills, and determine effective methods to teach these skills. (Brunt, 2008; Riddell, 2007; Bissel & Lemons, 2006; Raterink; Newton & Moore, 2013).

Literature highlights that nursing educators should revise their way of teaching, in an effort to enhance knowledge and skills needed to care for patients in complex and changing health care environments (Candela, Dalley, & Benzel-Lindley, 2006). Romeo (2010) suggested nursing faculty lack knowledge to teach critical thinking skills to students. Nursing faculties' lack of understanding critical thinking stems from ambivalence of the definition and difficulty measuring an individual's ability to think critically (Romeo, 2010; NLN 2007).

Nursing educators must teach more than just knowledge-based facts and skills. They must encourage and guide students to become life-long learners and independent critical thinkers (Romeo, 2010; Lee, 2007). Nursing educators must find a way to teach large amounts of information in a concise manner, and include ways to ensure students are learning how to critically

think in the process (Giddens & Brady, 2007). It is vital that nursing educators derive effective teaching methods to introduce necessary information in a meaningful manner (Giddens & Brady). Nursing educators must alter teaching methods from solely concentrating on knowledge-based content, and find ways to integrate application of the knowledge into the classroom setting (Romeo; Beiste & Palmer 2014). Application of the nursing knowledge is enhanced through the utilization of the critical thinking processes and skills (Romeo). Giddens & Brady presented a need to evaluate teaching methodologies, and their effectiveness towards meeting students' learning needs in an effort to improve critical thinking.

**Summary**

The changes that have occurred in healthcare over the last several years has necessitated a need to ensure that nurses learn to think critically, subsequently promoting safe, quality care. These evolving healthcare industry changes have exemplified a need for changes within nursing education academia. These changes must first occur by taking a closer look at how students are taught within the classroom setting and nursing educators overall understanding of the concept of critical thinking. Figure 1.1. illustrates the relationship between aspects presented within the background portion of this research study and their links to the problem statement discussed within the next section.

**Figure 1.1. Summary of Background Leading to Problem Statement**

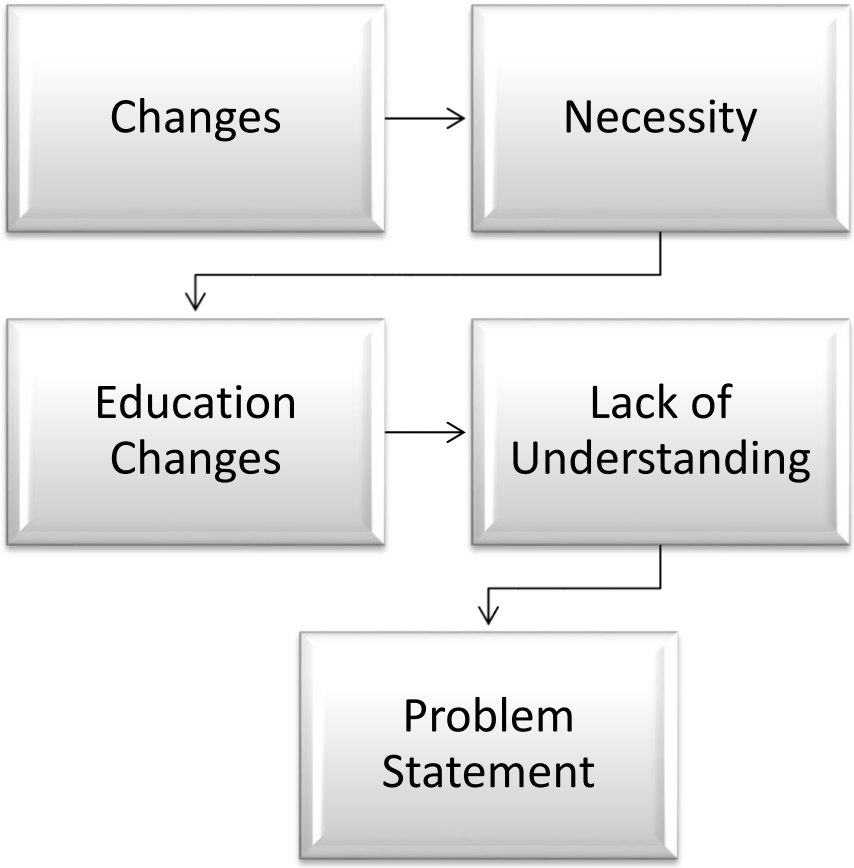


*Figure 1.1.* This figure represents the progression of changes within health care leading to critical thinking becoming a necessity in nursing education. Further identifying a need for educational change and a need to ensure that nursing educators understand the meaning of critical thinking. These elements aided in the development of the problem statement.

**Problem Statement**

Education and nursing have attempted to define, teach, and measure critical thinking for decades. Nursing educators have realized for over 50 years that critical thinking is the basis for development of objectives and goals for nursing students' successful progression in nursing education programs (Benner, Hughes, & Sutphen, 2008; Romeo, 2010). Professional accountability

and a commitment to lifelong learning is a necessary component of modern nursing practice (Brunt, 2005). Nurses must possess sound critical thinking skills to provide quality care for patients (Brunt). A nurse's ability to provide safe, high-quality care is reliant upon their ability to reason, think, and judge (Benner et al.). Nurses must be able to apply knowledge and experience to aide in the identification of patients' problems, and to direct clinical judgments that result in positive patient outcomes (Benner et al.).

The definition of critical thinking within nursing education is not clear within the literature (Brunt, 2008; Riddell, 2007; Bissel & Lemons, 2006; Raterink, 2008; Tajvidi, Ghiyasvandian & Salsali, 2014; Snyder & Wiles, 2015; Cazzell & Anderson, 2016). As a consequence, nursing educators may find the absence of a definition to be problematic, as how can they ensure the use of effective teaching methods in the classroom if they do not understand the meaning of critical thinking (Raterink; Scheffer & Rubenfeld, 2000; Cazzell & Anderson)? The ability to implement critical thinking is difficult due to differing concepts used to explain its meaning (Edwards, 2006). In addition, critical thinking is difficult to measure, therefore making it challenging to discern if teaching methods are effective.

There are many variations of the definition of critical thinking. There is little mention regarding how educators actually learn the meaning of the concept and how to teach the concept to ensure nursing students exit school knowing how to think critically (Brunt, 2008; Riddell, 2007; Bissel & Lemmons, 2006; Raterink, 2008; Tajvidi, Ghiyasvandian, & Salsali, 2014; Scalan, 2006; Cazzell & Anderson, 2016). Definitions of critical thinking offer definition of terms meaning, without any reference to how to implement the concept. The term critical thinking is used so often

in nursing education, that it has become a "blanket" term that seems to possess very little meaning. Often, nursing educators will say students need to be able to critically think without truly thinking of what this actually means and how they are supposed to implement the concept (Romeo, 2010; NLN, 2007).

Nursing educators continue to utilize lecture in the classroom setting as a means of expressing all needed materials to students (Romeo, 2010). Students often become saturated with content, therefore becoming unsure of what information needs to be submitted to memory. Nursing faculty must amend the manner in which they teach in the classroom to ensure nursing students are obtaining knowledge to perform safely in multiple healthcare environments (Romeo; Lee, 2007).

Healthcare no longer just exists within the hospital settings, but has expanded to homes and clinics (Kern, Bush & McCleish, 2006; Wettstein, Gardner, & Restrepo, 2011). It has become necessary for nurses to be flexible and think beyond the hospital setting when providing nursing care. Changes within healthcare require higher order thinking; no longer rote memorization, but learning that remains embedded for a lifetime. Students can develop higher order thinking when nursing faculty prepare students to improve their critical thinking. Nursing educators must utilize thoughtful course design which includes multiple teaching methods within the classroom to encourage thinking, inquisitiveness, and perseverance (Raterink, 2008; Scheffer & Rubenfeld, 2000; Schaber & Shanedling, 2012).

The development of critical thinking within the literature often focuses on the clinical setting, and identifies that critical thinking is enhanced within clinical situations where students apply what they have learned. The foundation for the development of critical thinking begins in the

classroom or theory setting when students initially learn about nursing. Within the classroom setting students gain the initial knowledge needed to carry out nursing care at the bedside, and from there must gain an understanding for how multiple concepts intertwine and evolve into the whole picture of the patient. Literature review has identified nursing educators should revise the way they are teaching to enhance the knowledge and skills needed to function in a diverse changing work environment (Candela, Dalley, & Benzel-Lindley, 2006; Schaber & Shanedling, 2012). Nursing educators must encourage students to think independently and seek to continue to learn throughout their lifetime (Romeo, 2010, Lee, 2007).

The problem discovered is an inconsistency within the literature regarding the definition of critical thinking in nursing, along with a lack of evidence that nursing educators are utilizing teaching methodologies to enhance critical thinking in nursing students within the classroom. With an inconsistent definition of critical thinking, nursing educators may find it difficult to understand how to implement critical thinking teaching methodologies within the classroom. Without a clear understanding of the meaning of critical thinking, it is difficult to ensure that nursing educators are providing students learning experiences that develop critical thinking skills in the classroom.

**Purpose Statement**

The face of the nursing profession has progressively changed over the years from a single dimensional work environment to one that requires flexibility, quick thinking, and problem solving skills. Technological advances and increasing demands of chronically ill patients require nurses to have increased critical thinking skills. To accommodate this, nursing educators must enhance these skills by providing multilevel educational experiences. The literature has revealed that there is a

lack of a concise definition of the term critical thinking in nursing education (Brunt, 2008; Riddell, 2007; Bissel & Lemons, 2006; Raterink, 2008; Tajvidi, Ghiyasvandian & Salsali, 2014; Cazzell & Anderson, 2016). This inconsistency with the definition of critical thinking creates the question, how can nursing educators teach students how to be effective critical thinkers if they are not clear about what the term means? The purpose of this qualitative phenomenological study is to identify the lived experiences of nursing educators assisting nursing students to develop critical thinking skills within the classroom at community college ADN programs in Nebraska. The study will also examine the nursing educators' meaning of critical thinking, the characteristics good critical thinkers need to possess, and the challenges nursing educators face when implementing critical thinking teaching methods within the classroom.

## Research Questions

**S**everal research questions have been proposed in an effort to identify how nursing educators describe the meaning of critical thinking, and the process of developing critical thinking within the classroom. Nursing educators understanding of critical thinking as it relates to the descriptions of teaching methods and challenges faced when attempting to integrate critical thinking within the classroom will also be examined.

### Central research question.

What are nursing educators' lived experiences in assisting nursing students to develop critical thinking in the classroom at community college associate degree nursing programs in Nebraska?

**Sub questions.**

1. What teaching methods do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska utilize to develop critical thinking in nursing students in the classroom?
2. How do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe the meaning of critical thinking?
3. What attributes do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe as necessary for students to be able to critically think?
4. What challenges do nursing educators who teach in nursing programs within community college associate degree programs face when integrating critical thinking into the classroom?
5. How do nursing educators who teach in nursing programs within community college associate degree programs know that their teaching methods are effective at enhancing critical thinking in students in the classroom setting?

Within Figure 1.2. below is an illustrated representation of the relationship of each sub question to the overall central research question. Through the examination of nursing educators teaching methods, meaning, student attributes, challenges, and effectiveness of teaching methods the central research question regarding the nursing educators lived experiences assisting nursing students to develop critical thinking within the classroom will be answered.

**Figure 1.2. Research Question Model**


*Figure 1.2* This figure represents the relationship of each sub question to the central research question regarding the lived experience of critical thinking. In order to visualize the lived experience as a whole all of the answers to the sub questions must be identified.

## Operational Definitions

**Associate Degree Nursing Program (ADN):** An ADN is a two year registered nursing program that provides students with the foundation of nursing knowledge, skills, and professional attitudes that are required for safe, competent, and comprehensive practice. After successful completion of an ADN program, students are permitted to take the NCLEX-RN to become licensed in the United States of America as a registered nurse.

**Attributes of Critical Thinkers:** In order for an individual to be an effective critical thinker they need to possess the skills of interpretation, analysis, evaluation, inference, explanation, and self-regulation (Facione, 2011). Individuals who are able to critically think often apply intellectual standards to the elements of reasoning to aide in the development of the intellectual traits (Paul & Elder 2008). Intellectual standards include clarity, accuracy, precision, relevance, depth, breadth, logic, and fairness (Paul & Elder, 1999; 2008). The elements of thought are purpose, question at issue, information, interpretation and inferences, assumptions, implications and consequences, and point of view (Paul & Elder). These elements of thought illustrate how we think and reason. All reasoning has a purpose, an issue or question to figure out, assumptions to clarify, and multiple points of view to be evaluated (Paul & Elder). Critical thinkers possess certain intellectual traits, which include humility, courage, empathy, autonomy, integrity, perseverance, confidence, and fair-mindedness.

**Challenges:** Difficulty integrating critical thinking within the classroom may be due to the educator's lack of knowledge regarding theory and acquisition of critical thinking skills and attitudes (Schaber & Shanedling, 2012). Nursing educators personal beliefs and values maybe an inhibiting factor as well (Dickerson, 2005). Courses may lack distinct objectives, poor course design, time constraints and large amounts of content (Schaber & Shanedling). Students' motivation, readiness and willingness to learn, along with personality traits, cultural competency, and community background may be factors that pose challenges when integrating critical thinking into the classroom (Ennis, 2013; Broadber & James, 2000).

**Classroom Setting:** A setting where nursing students come to a class held at a community college, with the intention of obtaining the information needed from the nursing educator to meet the learning objectives of the course and build on previous knowledge. This excludes outside clinical settings.

**Community College:** Community colleges, or junior colleges, are two-year schools that provide affordable postsecondary education that can lead to furthering education toward a four-year degree (Department of Homeland Security, 2012). Community colleges within Nebraska that will be asked to participate in the study are Mid Plains, Metropolitan, Northeast, Southeast, Western Nebraska, and Central Community.

**Critical thinking:** Critical thinking will be defined as" a nonlinear process of purposeful, self-regulatory judgment that gives reasoned consideration of evidence, contexts, conceptualizations, methods, and criteria" ( Facione, 1990, p. 2). Critical thinking is a broad topic used to explain the way individuals interpret, analyze, and synthesize knowledge. The skills of interpretation, analysis, evaluation, inference, explanation, and self- regulation are necessary to become effective critical thinkers (Facione, 1990; 2011).

**Effective at Enhancing Critical Thinking:** Effective teaching strategies lead nurses to analyze assumptions, formulate statements of knowledge, examine potential fallibility of statements, and use deductive and inductive reasoning, along with recognizing assumptions, interpreting arguments, and connecting theory to practice. (Dickerson, 2005; Walsh & Seldomridge, 2006). Effective teaching strategies will aid the student to shrink knowledge gaps, improve conceptualization, judge information critically, and problem solve more effectively (Magnussen, Ishida, & Itano 2000).

Teaching strategies have been effective when the student can “put it all together” or “make a whole from the parts of a situation” (Twibell, Ryan &Hermiz 2005).

**Experiences with Critical Thinking:** Nursing educators’ experiences with critical thinking may occur during formal or informal education, use of varied teaching methods, years as a nursing educator, and level of nursing education. Experiences may also involve the use of research, integration of critical thinking within the classroom, shared meaning of critical thinking, shared attributes of critical thinkers, shared effectiveness of teaching methods within the classroom, and shared challenges to integrating critical thinking into the classroom.

**Meaning of Critical Thinking:** Display the significance and general purpose of critical thinking in the classroom at community colleges associate degree in nursing programs.

**Nursing Educator**: Nursing educators teach at a community college, within an associate degree nursing program, and are currently pursuing a master’s degree in nursing or in possession of a master’s degree in nursing.

> Registered nurses with advanced education who are also teachers that facilitate learning, learner development and socialization, use assessment and evaluation strategies, participate in curriculum design and evaluation of program outcomes, pursue continuous quality improvement in the academic nursing educator role, engage in scholarship, service and leadership, function as a change agent and leader, engage in scholarship of teaching, function effectively within the institutional environment and the academic community (NLN, 2012, p. 5).

**Teaching Methods:** Variations in the manner of teaching within the classroom which can include solo activities, group activities, written work, modeling, and feedback. Solo activities may include, but are not limited to independent research, essay exams, and presentation. Group activities may include, but are not limited to thinking aloud, debriefing, case studies and discussion. Written activities may include, but are not limited to care plans, concept maps, and essay exams. Modeling may include, but are not limited to instructor/student interaction, coaching, and guided observation. Feedback may include, but is not limited to instructor critique of written work, constructive advice, and peer feedback (Twibell, Ryan, & Hermiz, 2005; Staib, 2003; Broadber & Keyser, 2000; Mumm & Kersting, 1997; Schaber & Shanedling, 2012; Mumm & Kersting, 1997; Whei, Masodi & Kipp, 2000).

## Assumptions, Delimitations, and Limitations

Assumptions in a study are typically out of the researcher's control, but if assumptions were removed the study would become irrelevant (Simon, 2011; Leedy & Paul, 2010). The researcher cannot just state that these are the assumptions made, but must justify that each assumption is probably true, otherwise the study cannot progress (Simon, 2011; Leedy & Paul, 2010).

There is an assumption that all prospective study participants will not return the survey. The researcher will assume that all participants will be truthful and detailed with their responses. Participants will be assured that anonymity will be maintained, and that they may withdraw from the study at any time. This researcher assumes that the level of education achieved by nursing faculty will affect the ability to define the central concept. The researcher will assume that the more experienced nursing educators will have a more in depth description of the meaning of the variable

critical thinking. The researcher will assume that the higher the level of nursing education and the length in years teaching within the classroom setting will increase the length and detail of the participants responses on the survey.

A limitation may exist as a result of the use of a purposeful sampling. The sampling results may not be characteristic of the entire population of nursing educators. The research will be limited to nursing faculty that teach in associate degree nursing programs at community colleges in Nebraska and will not go beyond the geographical area of this one state. The study will be limited to classroom teaching methods utilized to enhance critical thinking, not methods used in the clinical setting.

The delimitations section of a study will explain the criteria of participants to enroll in the study, the geographic region, and the profession or organizations involved (Simon, 2011). The results of this study would apply to participants who are full time faculty working in community colleges in Nebraska, possess a minimum of a BSN and/or MSN or with progression toward completing an MSN. The researcher will not examine effective ways to measure critical thinking, but will be reviewing how nursing educators utilize teaching methods within the classroom to aide in enhancing critical thinking.

**Conclusion**

The dynamics of healthcare and the nursing profession have changed over the years, which has created a need for changes in the manner in which nursing students are educated (Giddens, 2007). This need for change makes it necessary for nursing educators to teach students to be able to think critically. There is a need for nurses to be able to adapt to changing patient conditions, think

swiftly, and maintain patient safety (Giddens; IOM, 2011; Wilgis & McConnell, 2008). The literature reviewed has identified that nursing faculty lack a clear understanding of the meaning of critical thinking (Romeo, 2010; NLN, 2007). This lack of understanding of the term manifests from differing views and an unclear definition of critical thinking within the literature. This lack of consistency with the definition of critical thinking leads to questions regarding nursing faculty's understanding of the concept and their ability to effectively integrate critical thinking within the classroom. This research study identifies nursing educators at community colleges in Nebraska's ability to describe their experiences within the classroom utilizing teaching methods to enhance critical thinking. The study explores nursing educators' meaning of critical thinking, necessary skills to critically think, and challenges to implementing critical thinking teaching methods within the classroom setting.

# Chapter 2

## Literature Review

This literature review examines changes occurring in healthcare over the last several years that prompted a need for transformation in nursing education. An introduction of the history of critical thinking and the definitions within the literature will also be included. Facione (2011) and Elder and Paul's (1990) conceptual frameworks will be presented to illustrate the concept of critical thinking. The researcher's concept analysis of teaching critical thinking is included within the conceptual framework section as well. Critical thinking will be examined in nursing education. Additionally, the concept will be studied to illustrate effective teaching methods that may aid in clarifying the definition of the term and the consequences of effectively teaching students to think critically.

### History of Critical Thinking

The roots of critical thinking date back 2400 years to Socrates, as he believed that people spoke without having adequate evidence and clear meanings of concepts (Paul, 1985). Socrates discovered a method for questioning people, and gained an understanding that individuals could not rationally justify the knowledge they claimed to have (Paul). Socrates established that individuals should not depend on those in "authority" to have sound knowledge and insight, but ask deep questions that probe into thinking before we accept ideas as truth (Paul, Elder & Bartell, 1997). Accepting the truth requires that we examine evidence, reasoning, and assumptions and analyze basic concepts (Paul et al.). Hence, Socrates is responsible for the creation of the "Socratic Question," which is utilized for the purposes of thinking with clarity and logical consistency (Paul et al.).

Voltaire, John Henry Newman, John Stuart Mill, and William Graham Summer offered their insight regarding the concept of critical thinking in the 18th, 19th, and 20th centuries (Paul, 1985). Their views identified the need for knowledge and learning to include sound reason and judgment in order to exclude prejudices about knowledge and beliefs. It is vital that individuals critically reflect with every situation to obtain complete knowledge to act rationally and make sound decisions (Paul). An overemphasis has been placed on "rote memorization and facts," which does not benefit students. Rote memorization of facts means learning material for the moment and not engraining information within one's mind (Paul). The traditional picture of knowledge and learning must be geared toward rewards and include "active, independent, self-directed learning", so that students can "gather and assess data rigorously and critically" (Paul, p. 6). Paul suggested that we need to "abandon methods that make students passive recipients of information" and adopt methods that transform students into "active participants in their own intellectual growth" (p. 6).

## Conceptual Framework

### Facione's conceptual framework.

Facione (2011) identified core critical thinking skills necessary to be effective critical thinkers. Individuals must possess certain mental skills and habits of the mind, along with the cognitive skills of interpretation, analysis, evaluation, inference, explanation, and self-regulation (Facione, 2011; 1991; 1994). The definition of each cognitive skill is below:

***Interpretation.***

To comprehend and express the meaning or significance of a wide variety of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or criteria (Facione, 2011,p. 5).

***Analysis.***

Identify the intended and actual inferential relationships among statements, questions, concepts, descriptions, or other forms of representation intended to express belief, judgment, experiences, reasons, information, or opinions (Facione, 2011, p. 5).

***Evaluation.***

To assess the credibility of statements or other representations which are accounts or descriptions of a person's perception, experience, situation, judgment, belief, or opinion, and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions or other forms of representation( Facione, 2011, p. 6).

***Inference.***

To identify and secure elements needed to draw reasonable conclusions; to form conjectures and hypotheses; to consider relevant information and to reduce the consequences flowing from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representations (Facione, 2011 p. 6).

***Explanation.***

To be able to present in a cogent and coherent way the results of one's reasoning (Facione, 2011 p. 6).

***Self-regulation.***

To self-consciously monitor one's cognitive activities, the elements used in those activities, and the results, particularly by applying skills in analysis and evaluations to one's own inferential confirming, validating, or correcting, either one's reasoning or one's results (Facione, 2011 p. 7).

The expert opinions from Facione's study concluded to improve critical thinking skills, individual's disposition or attitude should be examined. Individuals that would be apt to use their critical thinking skills would have what the experts call the "critical spirit" (Facione, 2011 p. 10). Critical spirit means "a probing inquisitiveness, a keenness of mind, a zealous dedication to reason, and a hunger or eagerness for reliable information" (Facione, 2011, p. 10). The dispositions or attitudes that characterize a good critical thinker are being inquisitive, well-informed, alert to opportunities, self-confidence, open-minded, and flexible, understanding of opinions of others, and fair-minded. (Facione, 2011). Critical thinkers can be described by the approach they take with certain types of issues or problems. Experts interject that individuals who possess the attitudes of good critical thinkers seek clarity in stating questions or concerns, are orderly when working with complex situations, seek to find relevant information, focus on the concerns at hand, are persistent even though things may be difficult, and are precise (Facione, 2011). Representation of Facione's Conceptual Framework is located in Figure 2.1.

**Figure 2.1. Conceptual Framework of Facione's Critical Thinking Appraisal**

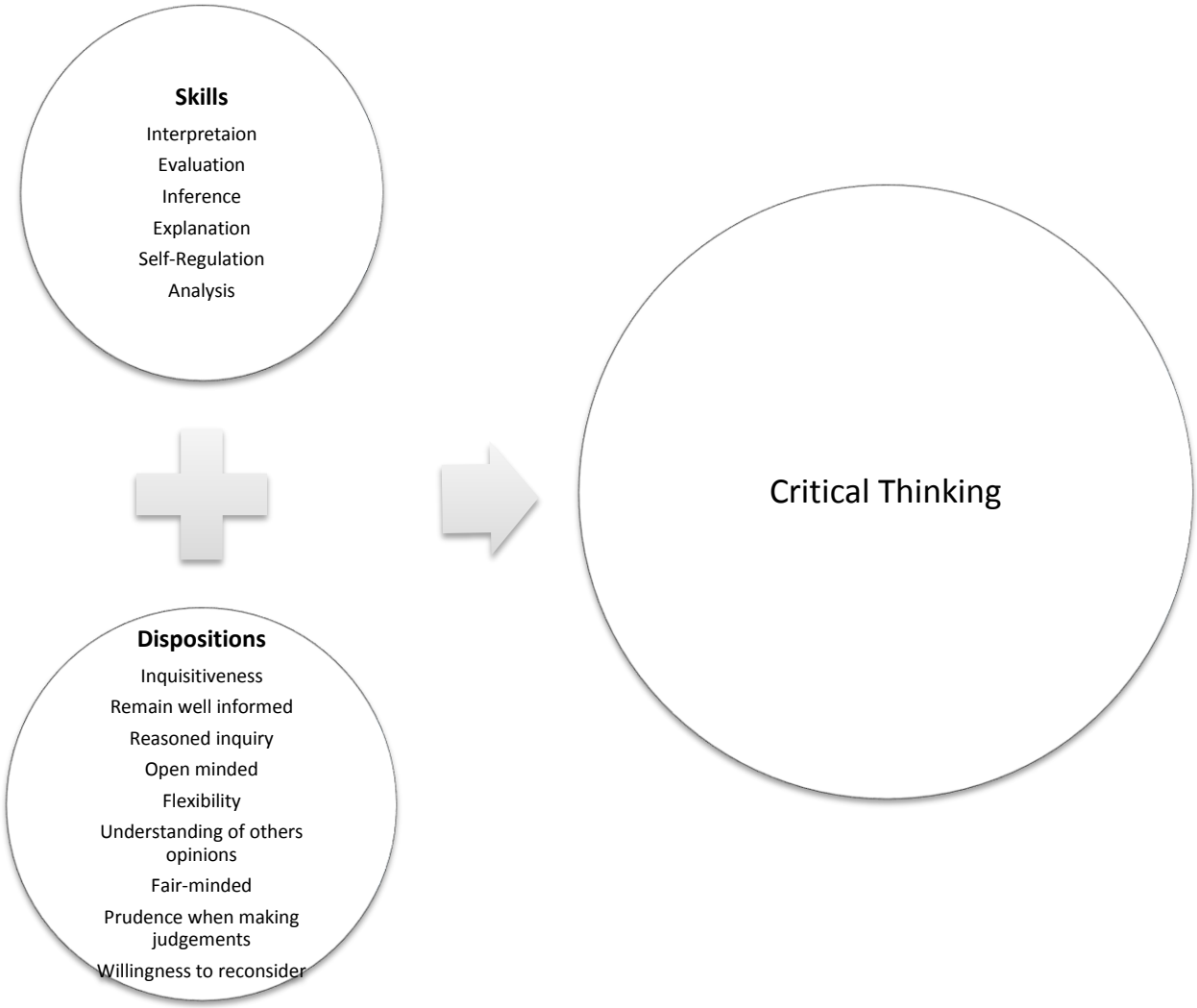


*Figure 2.1.* Represents Facione's elements necessary for the development of critical thinking (Facione, 2011).

**Paul and Elder's conceptual framework.**

Paul and Elder (2008) propose that thinking is necessary for quality of life but is often biased, distorted, partial, uninformed, and prejudice. Thinking poorly can be costly and lead to poor quality of life because what is produced, made, and built depends on the quality of thought (Paul & Elder, 2008). Critical thinking, according to Paul and Elder, is "the art of analyzing and evaluating thinking with a view to improving it" (p. 2). If one becomes a "cultivated" critical thinker they are more apt to raise vital questions and problems and formulate the questions clearly and precisely (Paul & Elder). Consequently, they will be able to gather and assess relevant information, come to well-reasoned conclusions, think open-mindedly, and communicate more effectively when seeking solutions to problems (Paul & Elder).

In Paul and Elder's (2008) book *The Miniature Guide to Critical Thinking: Concepts and Tools* several key aspects are introduced that individuals must cultivate in order to develop critical thinking. These include Elements of Thought, Universal Intellectual Standards, and Essential Intellectual Traits (Paul & Elder, 2008). The Elements of Thought are purpose, question at issue, information, interpretation and inferences, assumptions, implications and consequences, and point of view. These Elements of Thought aide in illustrating how we think and reason. All reasoning has a purpose, an issue or question to figure out, assumptions to clarify, and multiple points of view to be evaluated (Paul & Elder). Reasoning must be based on data, information, evidence in which concepts and ideas are identified, and inferences and interpretation of the information can be made (Paul & Elder). Every element of reasoning and thought leads to final implications and consequences (Paul & Elder).

Paul (1990) emphasized that nurses who possess ample critical thinking abilities value and adhere to intellectual standards. Intellectual standards applied to clinical situations enable students to employ quality thinking (Paul & Elder, 1999; 2008). The intellectual standards include clarity, accuracy, precision, relevance, depth, breadth, logic, and fairness (Paul & Elder). The standard of clarity is considered a "gateway standard" (Paul & Elder). If a statement is verbalized or written unclearly, it is difficult to determine if the statement is accurate or relevant, therefore needing clarity (Paul & Elder). "For example, the question "What can be done about education in America?" is unclear" (Paul & Elder, p. 8). To make the statement more concise, it is important to address which problem the individual really wants to know, which in turn would lead to more clarity. The individual may want to ask a question specific about the education system and specific problems that are relevant (Paul & Elder).

Statements may be clear, but lack accuracy. An example of this might be that all human beings weigh 300 pounds, which is not accurate (Paul & Elder, 1999; 2008). Other questions would need to be asked in order to ensure that this statement is more accurate. Asking probing questions will help to ensure that the statements are more accurate, like is this really true and how could you check that to ensure that this is true (Paul & Elder)?

Paul and Elder (1999; 2008) emphasize these standards by continuing to ask pertinent questions to ensure that a problem has been thoroughly explored before decisions are made. They suggest statements can be clear, accurate, and precise, but not be relevant to the primary issues (Paul & Elder). A statement can be clear, accurate, precise, and relevant, but lack depth. Breadth illustrates that statements are examined from multiple viewpoints. Logic examines if statements make sense, and fairness ensures that information is not biased (Paul & Elder). Each standard

allows students to think from various perspectives and strive for an understanding of particular concepts. Below are questions that are included within Paul and Elder's intellectual standards conceptual framework (p. 108).

***Clarity.*** Could you elaborate further? Could you give me an example? Could you illustrate what you mean?

***Accuracy.*** How could we check on that? How could we find out if that is true? How could we verify or test that?

***Precision.*** Could you be more specific? Could you give me more details? Could you be more exact?

***Relevance.*** How does that relate to the problem? How does that bear on the question? How does that help us with the issue?

***Depth.*** What factors make this a difficult problem? What are some of the complexities of this question? What are some of the difficulties we need to deal with?

***Breadth.*** Do we need to look at this from another perspective? Do we need to consider another point of view? Do we need to look at this in other ways?

***Logic.*** Does all this make sense together? Does your first paragraph fit in with your last? Does what you say follow from the evidence?

***Significance.*** Is this the most important problem to consider? Is this the central idea to focus on? Which of these facts are most important?

***Fairness.*** Do I have any vested interest in this issue? Am I sympathetically representing the viewpoints of others?

Paul and Elder (2008) bring forth several Essential Intellectual Traits necessary to develop critical thinking. Each of these traits is imperative for the development of critical thinkers. Individuals who are critical thinkers often apply intellectual standards to the elements of reasoning to aide in the development of the intellectual traits (Paul & Elder, 2008). The intellectual traits are listed in the table below:

**Table 2.1 Essential Intellectual Traits (Paul & Elder, 2008).**

| **Intellectual Traits** | **Explanation** |
|---|---|
| Humility **versus** Arrogance | Having consciousness of limits of one's knowledge, not claiming more than one knows. |
| Courage **versus** Cowardice | Having consciousness of the need to face and fairly address ideas, beliefs or viewpoints toward which we have strong negative emotions. |
| Empathy **versus** Narrow-mindedness | Having consciousness of the need to imaginatively put oneself in the place of others in order to genuinely understand them. |
| Autonomy **versus** Conformity | Having rational control of one's beliefs, values, and inferences. Learn to think for oneself, to gain command over one's though processes. |
| Integrity **versus** Hypocrisy | Recognition of the need to be true to one's own thinking, to practice what one advocates for others, and honestly admit discrepancies and inconsistencies in one's own though and action. |
| Perseverance **versus** Laziness | Having a consciousness of the need to use intellectual insights and truths in spite of difficulties, and obstacles and frustrations. |
| Confidence in Reason **versus** Distrust of Reason and Evidence | Confidence that, in the long run, one's own higher interests and those of humankind at large will be best served by giving the freest play to reason, by encouraging people to come to their own conclusions. |
| Fair-mindedness **versus** Unfairness | Having a consciousness of the need to treat all viewpoints alike, without reference to one's own feelings or vested interest. |

## Concept Analysis Framework

Previous coursework and research led to the development of a concept analysis based on the antecedents, attributes, and consequences of teaching critical thinking. The concept analysis yielded results that apply to the operational definitions and research questions within this study. The research questions pertain to the attributes of critical thinkers, teaching methods utilized to ensure students are learning to critically think, and the evidence or consequences of critical thinking.

### Antecedents.

Antecedents are *occurrences* or events that must be in place prior to a concept occurring (Walker & Avant, 2011). In order to teach critical thinking there must be certain events that precede the concept. Prior to implementing teaching methods to enhance critical thinking, nursing educators need to be prepared and possess knowledge regarding critical thinking skill development and learner attributes. Nursing educators should identify the specific characteristics of the learner that will improve the learning process (Twibell, Ryan & Hermiz 2005). Faculty must be knowledgeable regarding how to introduce questions from lower to higher levels and ensure the student understands how this will aide in the development of critical thinking (Twibell et al., 2005). Faculty must possess a clear understanding and expertise of the purpose of the content (Staib, 2003; Ennis, 2013). Other antecedents that must be in place prior to teaching critical thinking are to evaluate the personality traits, class sizes, cultural competency, community background, and amount of time available to teach the class (Ennis, 2013).

Students' willingness and eagerness to learn and motivation to engage at higher levels of thinking will also influence their ability to think critically (Broadber & James, 2000). Prior to

teaching, nursing educators must develop a course that allows students a chance to go beyond obtaining information at just the knowledge level; students must be encouraged to reflect and apply new knowledge in various ways (Schaber & Shanedling, 2012).

Personal beliefs and biases of educators may affect the manner in which they teach and develop course teaching methods. It is essential that nursing educators examine their own beliefs, current issues, facts, and consider positive and negative options regarding teaching methods when presenting information to students (Dickerson, 2005). Nursing educators should reflect on their teaching styles and be willing to change the way they teach in order to benefit students (Dickerson).

**Attributes.**

Selection of proper teaching methods for conveying content are essential for development of critical thinking skills. Twibell, Ryan and Hermiz (2005) emphasize that teaching critical thinking involves asking questions, reviewing written products, conducting clinical conferences, and evaluating student journals. The use of case studies, nursing care plans, coaching, and journaling, are other methods which have been identified as effective in teaching critical thinking (Twibell, et al., 2005). Staib (2003) defined teaching critical thinking by using solo activities and group activities. Group activities include thinking aloud, debriefing, chart review, grand rounds, case study, and forums for discussion of critical elements of course content. Solo activities include mind mapping and journal writing. Other attributes of teaching critical thinking include explicit modeling of thinking and classroom activities that help students begin thinking about their thinking (Broadber & Keyser, 2000). Mumm and Kersting (1997) also include writing about clinical experiences, student discussion of personal writings, large group discussions, reading assignments, and directed gaming. Additionally, timely feedback from instructor, repetition of assignments, and

active engagement with material are important characteristics which allow for enhanced thinking ability and skill (Schaber & Shanedling, 2012).

Explicit modeling of thinking and classroom activities helps students begin thinking about their thinking and has proven effective in enhancing critical thinking (Broadber & Keyser, 2000). Students writing about clinical experiences and conferring over written work provides opportunity for students to practice thinking steps, and develop questioning skills necessary for probing their thought processes (Mumm & Kersting, 1997; Whei, Masodi & Kipp, 2000). Incorporation of reflection allows students to clarify what they have learned and begin to connect theoretical basis for interventions which they perform in the clinical setting (Schaber & Shanedling, 2012; Ennis, 2013). Additional methodology includes conducting independent research, working on a group project, giving a classroom presentation, taking essay exams, web based case studies, online discussions, and instructor/ class interaction (Schaber & Shanedling,).

When evaluating attributes of teaching critical thinking, the evidence after the analysis illustrates that teaching methods are the core of the concept. It became evident that teaching methods could be placed into categories to simplify the attributes needed to teach critical thinking. Case studies and discussion can occur within the live classroom, clinical setting, or online. Solo activities include independent research, essay exams, and presentations. Depending on the context of the assignment, presentations can be classified in either the group or solo category. Written strategies can include care planning, concept maps, and essay exams. Essay exams might be group or solo. Modeling can include instructor/student interaction, coaching, and guided observation. Feedback includes instructor critiquing written work and giving constructive advice, as well as peer

feedback to fellow students. This research study will focus solely on teaching methods performed within the classroom setting.

**Consequences.**

Within a concept analysis, a consequence is the result of the concept actually occurring (Walker & Avant, 2011). The consequences of being able to effectively teach critical thinking affect the student's ability to utilize information in more useful ways. Dickerson (2005) identified that utilization of appropriate teaching strategies lead nurses to analyze assumptions, formulate statements of knowledge, examine potential fallibility of statements, and use deductive and inductive reasoning.

Twibell, Ryan and Hermiz (2005) concluded that through seeking, predicting, planning, and applying information, students are able to "put it all together" or "make a whole from the parts of a situation". Effective critical thinking teaching yields the development of critical thinking skills. Critical thinking skills include confidence, contextual perseverance, and reflection as well as the ability to analyze, apply standards, discriminate, seek information, reason logically, and transform knowledge (Twibell et al., 2005). Effective teaching of critical thinking enhances clinical competence, assigns meaning, informs decisions, and helps identify logical flaws (Staib, 1993; Twibell et al; Mumm & Kersting, 1997).

Critical thinking teaching methods permit students to apply concepts learned in school to various client situations, develop cognitive skills, gain theoretical knowledge, interpret data, and make clinical judgments (Whei, Masoodi & Kipp, 2000). The ability to think critically empowers

practitioners to enhance clinical reasoning (Schaber & Shanedling, 2012). The introduction of teaching methods to improve critical thinking skills is effective at improving student reasoning and clinical judgment (Brunt, 2005). It is imperative, even once a nurse has completed his/her education process, to continue improving critical thinking. According to Dickerson (2005), if teaching methods are utilized, nurses can then learn to analyze assumptions, formulate statements of knowledge, examine potential fallibility of the statements, and use deductive and inductive reasoning.

Consequences of effective teaching strategies can have a positive effect on an individual's critical thinking skills. Magnussen, Ishida, and Itano (2000) identified that problem based learning (PBL), allowed learners to shrink knowledge gaps, improve conceptualization, judge information critically, and problem solve more effectively. The teaching methodologies that manifested from PBL reduced surface learning and lessoned the ability to memorize the material (Magnussen et al., 2000). The utilization of varying teaching methodologies can enhance critical thinking. According to Walsh and Seldomridge (2006), by utilizing reflective writing and concept mapping students can learn to recognize assumptions, interpret arguments, and connect theory to practice. Included within this literature review is a model of the concept of teaching critical thinking found in Figure 2.2.

**Figure 2.2. Concept Analysis: Teaching Critical Thinking Representation**

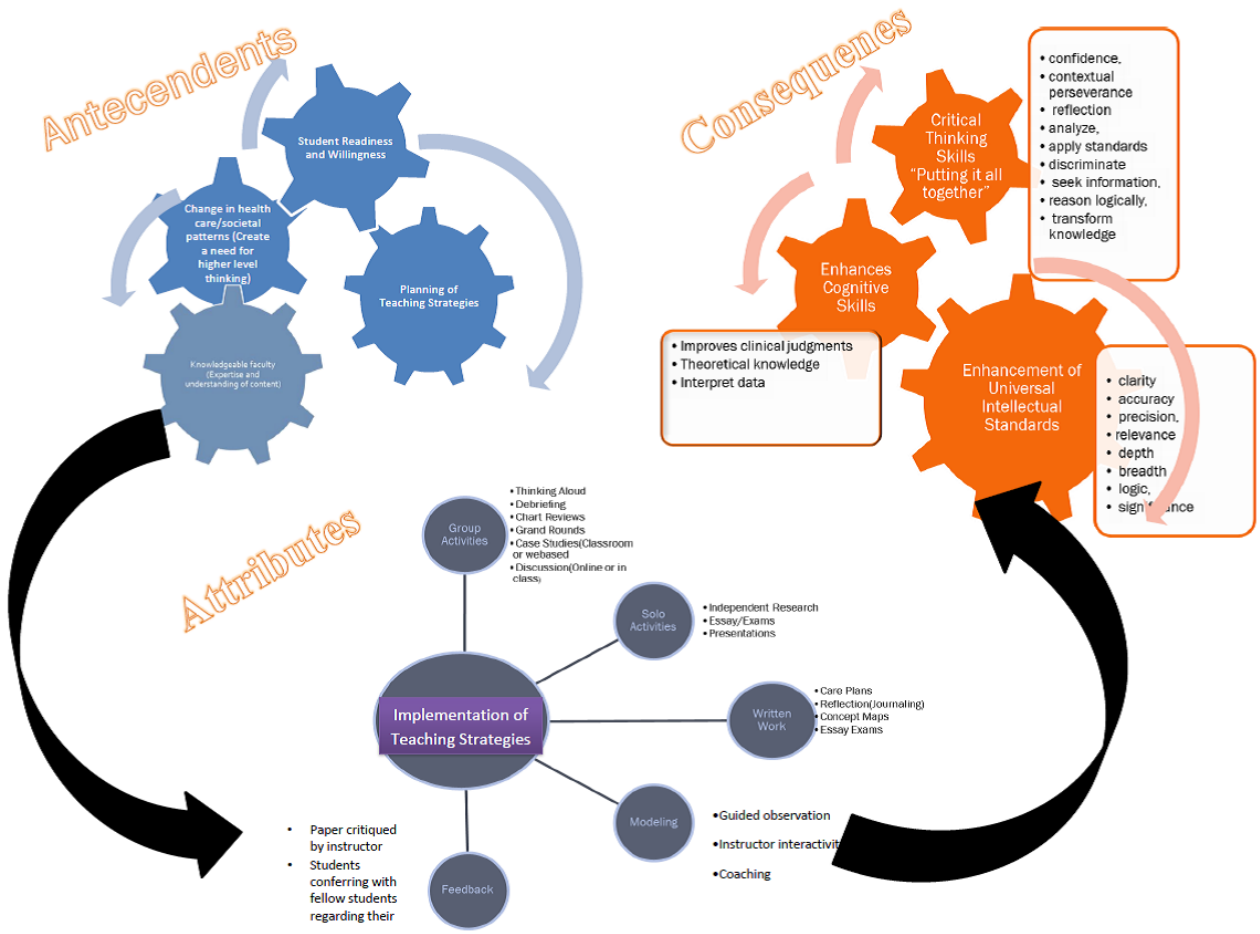


*Figure 2.2.* This figure represents a concept analysis that identifies the antecedents, attributes and consequences of teaching critical thinking

## Historical Perspective

The Institute of Medicine's (IOM, 2010) report on the *Future of Nursing: Leading Change, Advancing Health* emphasizes that nurses play a vital part as members and leaders for reform. This reform will provide improved integration of patient-centered health care systems and place

emphasis on prevention and health promotion (IOM). The healthcare system changes daily because of the political and economic demands. These changes create a need for healthcare providers to obtain more education and preparation to adopt new roles quickly in response to an evolving healthcare system (IOM).

The ever-changing nature of healthcare makes it difficult to teach nursing students in a static manner (Gull & Boman, 2006). Nursing educators can no longer teach the same material and expect students to become the type of skilled thinkers necessary to practice safe, competent nursing care. Healthcare changes have manifested a need for nursing educators to teach at higher levels, teaching nursing students to apply knowledge in order to improve critical thinking (Romeo, 2010; Adams, 1999; Del Bueno, 2005). Faculty must encourage and guide students to continue their learning process throughout their lifetime in order to become independent critical thinkers (Romeo; Hoffman, 2008; Lee, 2007).

Nursing has embarked on a "curriculum revolution," and the appraisal of critical thinking has gained substantial attention in nursing academia. Attention manifests from accrediting organizations requiring nursing schools to produce outcomes illustrating students' growth in critical thinking skills (Magnussen, Ishida, & Itano 2000; Facione & Facione 1994; Romeo 2010; NLN 2007). Assessment of critical thinking has become necessary for schools of nursing to maintain accreditation through the National League for Nursing (Romeo; NLN). Evaluating nursing students' critical thinking abilities is necessary as a means of assessing learning outcomes. The National League for Nursing (NLN, 2007) determined that true professionalism requires thoughtful decision-making founded on the ability to make purposeful, reflective judgments. This process involves the ability to analyze, interpret, explain, evaluate, and make inferences about clinical

situations (Facione & Facione, 1994). Learners must be taught cognitive skills that aid in enhancement of critical thinking, and nursing programs are to show evidence that nursing students critical thinking skills have developed (Facione & Facione; Magnussen et al.).

Developing into a professional nurse requires students to learn to think like a nurse. Nurses must view each client individually in order to identify physical and psychological problems (Paul, 1990; Ennis & Norris, 1989). Learning to think like a nurse requires students to learn the content of nursing which includes the ideas, concepts, and theories. Along with the content, nursing students must also develop their intellectual capacities and skills in order to become disciplined, self-directed critical thinkers (Paul, 1999; Ennis & Norris, 1989).

The need to develop specific educational strategies to enhance critical thinking is necessary within the nursing field (Brunt, 2005). Rapid changes in medicine, more high-level performance procedures, and complex critical environments require nurses to have enhanced critical thinking skills. Critical thinking skills may include acclimating to different circumstances, solving problems, and utilizing knowledge in a way that allows for logical, analytical, and systematic thinking (Kowalczyk, 2011; Hassan & Madhum, 2006).

The premise of research in nursing has changed over the years to include the term evidence based practice. In nursing, there are accepted standards of professional performance, and in today's health care realm, nurses are encouraged to utilize the best evidence to guide their practice decisions (Winters & Echeverri, 2012). Nurses are also encouraged to continue with lifelong learning, to enhance inquiry, and to improve critical thinking skills (Winters & Echeverri). Dickerson (2005), in the article "Nurturing Critical Thinkers," mimicked the IOM in relation to nurses needing to be lifelong learners. Dickerson's article focused on the continuing education environment, and

continual need for professional nurses to enhance critical thinking skills. Dickerson recognized the need for nurses to continue developing analytical skills and knowledge in order to maintain proficiency and safety.

**Figure 2.3. Historical Perspective Summary**

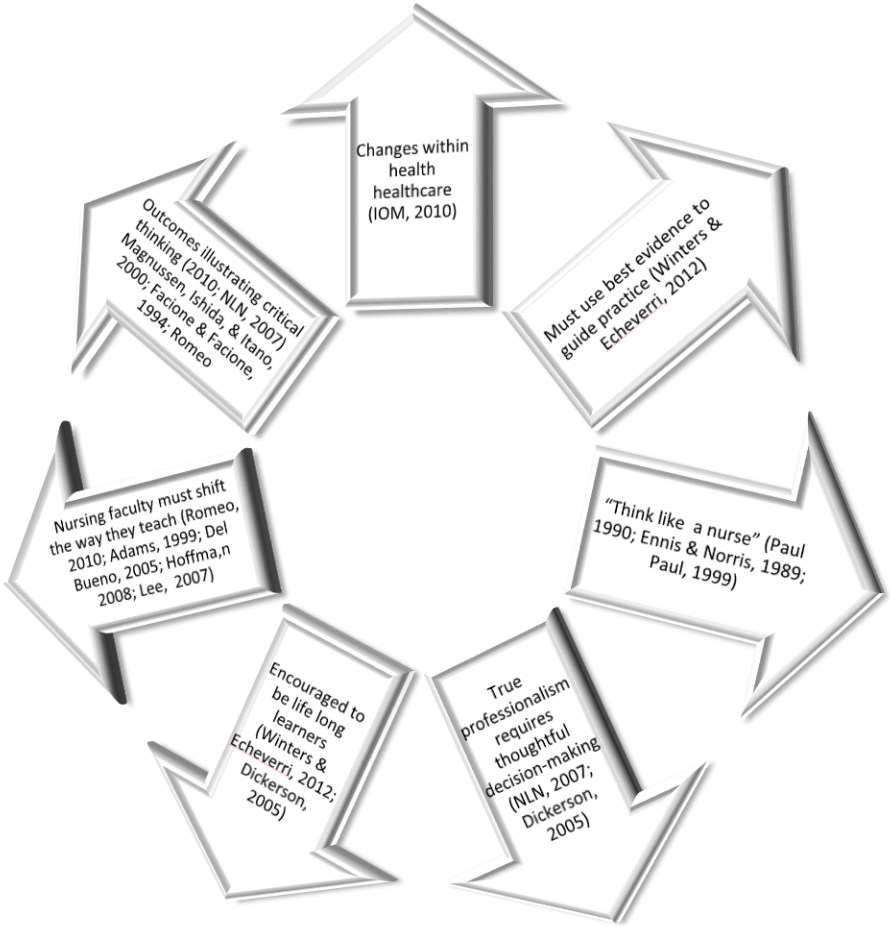


*Figure 2.3.* This figure represents a summary of the historical literature review findings.

**Teaching Critical Thinking Background**

Within general education and nursing education, attempts have been made for decades to identify effective ways to define, teach, and measure critical thinking (Romeo, 2010). Upon

graduation, registered nurses must successfully pass the NCLEX RN examination in order to gain licensure. Wettstein, Wilkins, Gardner, and Restrepo, (2011) concluded that critical thinking linked to teaching effectiveness is a single predictor of board examination performance in healthcare. Consequently, there is concern that new nursing recruits lack the ability to think critically. Critical thinking instruction must occur early in nursing curriculums. Early introduction to logical test taking strategies and National Council Licensure Examination RN (NCLEX-RN) style questions aide in student progression through the nursing program (Romeo).

New graduates' first professional nursing positions occur in diverse settings, ranging from outpatient ambulatory care to specialized intensive care units, all of which require different skill sets and knowledge (Hoffman, 2008). The volume of content within nursing curriculums has become overwhelming for students, as well as for nursing educators. Hence, students must learn to be independent thinkers and lifelong learners (Hoffman). In an effort to prepare students to think and become lifelong learners, students must be taught to be proficient critical thinkers. Critical thinking is a crucial element necessary for safe, appropriate, and relevant patient care (Hoffman). Critical thinking is a broad topic, used to explain the way individuals interpret, analyze, and synthesize knowledge (Facione, 1991).

Ennis (2013) defines teaching critical thinking as, "the need to urge students to be reflective, ask how do you know, and emphasize the alternative hypothesis or decision" (p. 3). Schaber and Shanedling' (2012) defined teaching critical thinking as "requiring thoughtful course design that provides students opportunities to process information beyond acquisition of knowledge through reflection and application of that knowledge in challenging ways" (p. 9). Kopp's definition (2000) of

teaching critical thinking emphasizes "learning activities that focus on stepwise development of thinking skills" (p. 35).

Twibell, Ryan and Hermiz (2005) explored the "perceptions of nursing faculty members as they teach critical thinking to baccalaureate students in clinical settings" (p.72). Their research concluded that teaching of critical thinking occurs through asking questions, reviewing written products, conducting clinical conferences, and evaluating student's journals (Twibell, et al. 2005). The consequence of the teaching reflects that students gain an aptitude toward, "Putting it all together," through seeking, predicting, planning, and applying information" (Twibell et al. p. 71). "Putting it all together," means synthesizing various elements into an integrated whole (Twibell et al.). Specific characteristics of learners and teachers need to be present in order for effective critical thinking to take place. Having knowledgeable faculty who know how to pose questions from lower to higher levels of abstraction and explain the questioning process are some essential characteristics (Twibell et al.). Additionally, prior to effectively teaching of critical thinking, faculty must possess a clear understanding and expertise of the purpose of the content (Staib, 2003; Ennis, 2013). Taking into consideration that personality traits, class sizes, cultural competency, community background, amount of time available to teach the class can also effect the ability to teach critical thinking (Ennis). Prior to teaching critical thinking student readiness and willingness to engage in intellectual work must also be taken into consideration (Broadber & James, 2000).

Effective teaching methodologies must encompass personal beliefs and values of educators. It is imperative that nursing educators examine their own beliefs, current issues, and facts, and consider positive and negative options regarding teaching methods when presenting information to students (Dickerson, 2005). Nursing educators must reflect on their teaching styles, and be willing

to change the way they teach in order to benefit students (Dickerson). Educators should encourage questioning, focus on learner knowledge, and incorporate information from other disciplines to enhance student critical thinking skills (Dickerson).

Schaber and Shanedling (2012) discussed the need for course design structures and highly structured learning in order for successful teaching of critical thinking to occur. They emphasized the importance of reflection and application of knowledge and processing information beyond acquisition of knowledge (Schaber &Shanedling, 2012). Course objectives must be distinct, and the teacher must possess theory knowledge, acquisition, critical thinking skills, and attitude to be effective at teaching critical thinking (Schaber & Shanedling).

**Figure 2.4. Teaching Critical Thinking Background Summary**

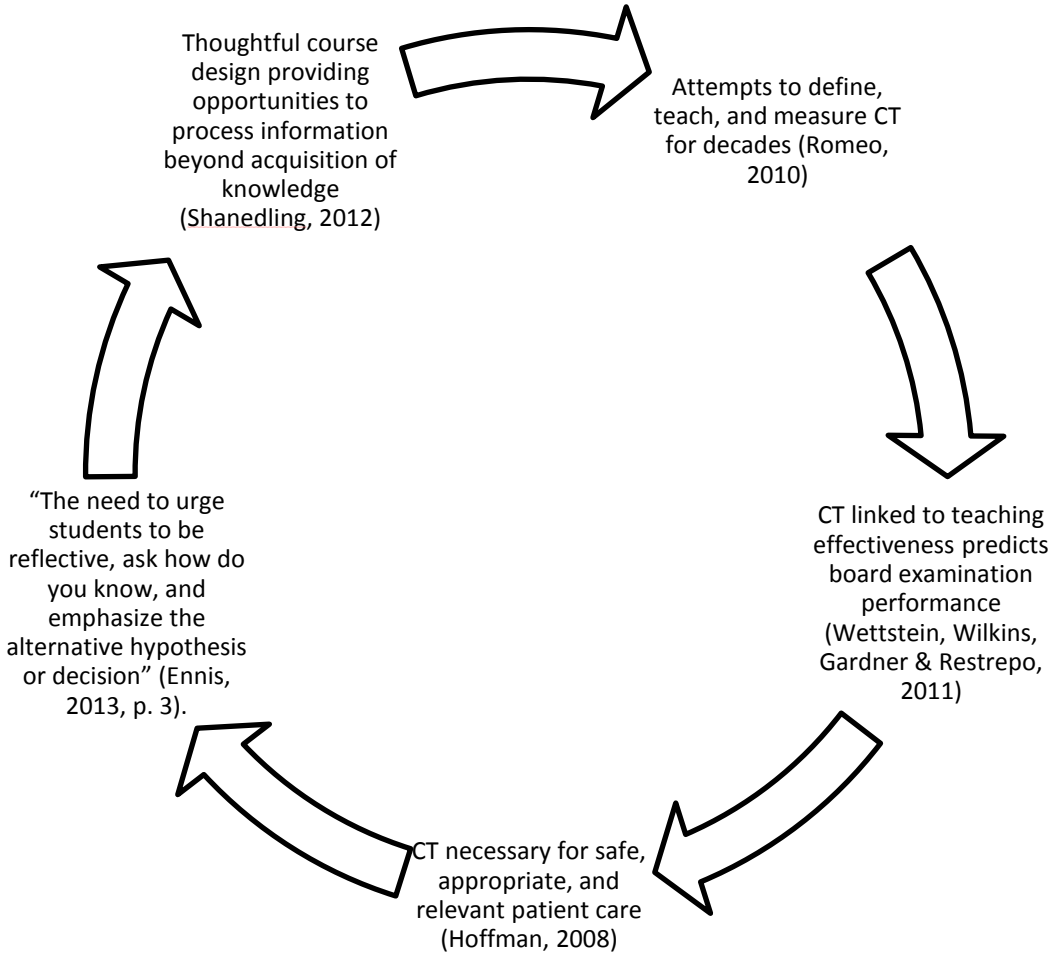


*Figure 2.4.* Representation of a summary of literature pertaining to the need to teaching critical thinking in nursing

## Definitions of Critical Thinking

The concept of critical thinking has been utilized so frequently that the meaning of the concept has begun to lose the applicability in measuring or demonstrating outcomes (Lloyd & Bahr, 2010). In order for students to be evaluated fairly, it is important to have a clear and shared

understanding of the definition of critical thinking (Knight, 2007). The application of critical thinking teaching methods in the classroom is influenced by the educators' ability to define critical thinking. (Lloyd & Bahr).

The literature findings have revealed that there is not an accepted definition of critical thinking in nursing (Gul & Boman, 2006; Romeo, 2010; Jones, 2010; Newton & Moore, 2013). The definition that has surfaced repeatedly in the literature is the American Physiological Association (APA) Delphi Research Report by Facione (1990) that states critical thinking is " a nonlinear process of purposeful, self-regulatory judgment that gives reasoned consideration of evidence, contexts, conceptualizations, methods, and criteria"(p. 2). Critical thinking is a broad topic, used to explain the way individuals interpret, analyze, and synthesize knowledge (Facione, 1990). Critical thinking skills like interpretation, analysis, evaluation, inference, explanation, and self- regulation are necessary to become effective critical thinkers (Facione, 2011).

Critical thinking definitions emphasize in-depth consideration and examination of gathered information by using different modes of thinking (Hassan & Madhum, 2006). Abel and Freeze (2006) defined critical thinking in a similar fashion to Facione (1990), except the components of deliberate logical reasoning and linear and nonlinear thinking were added. Logical reasoning and thinking is used to analyze, synthesize, and evaluate relationships between components of the nursing process for the purpose of self-regulatory judgments and clinical decision-making. Effective development of critical thinking requires individuals to possess a certain attitude, level of knowledge, and skill (Watson & Glaser, 1980). Individuals must be able to recognize assumptions, evaluate arguments, and draw conclusions (Watson & Glaser). Wilkinson (1996) defined critical

thinking as having "purposeful mental activity in which ideas are produced and evaluated and judgments are made" (p. 20).

Romeo (2010) identified that critical thinking is a process involving critical, reflective, and reasonable thinking about problems specific to nursing practice that do not have a single answer and centered on deciding what to do or believe. Taylor (2006) described critical thinking as sensible analysis of ideas, inferences, principles, arguments, conclusion, issues, statements, beliefs and actions.

Critical thinking has also been described as clinical reasoning, clinical decision-making, and clinical judgments (Tiffany, 2008). Nurses need to anticipate patient needs and possess an ongoing understanding of a patient's health status and care needs (Benner, Hughes & Stephen, 2008). This awareness requires an assessment of their understanding of the current situation, critical reflection, critical reasoning, and clinical judgment (Benner et. al, 2008).

The concept of critical thinking has been used as a way to enhance learning within the nursing profession since the early 1950s (Ignatavicius, 2001). According to Ignatavicius, critical thinking is "purposeful, outcome-directed thinking that is based on scientific knowledge derived from research and other sources of evidence" (p. 32). Critical thinking involves examining options and alternatives and selecting what is best to meet a desired goal (Ignatavicius).

The definitions of critical thinking have and will continue to aide in developing the scope and key elements of thought processes involved in providing clinical care. Exactly how critical thinking is defined influences how it is taught and to what standard of care nurses are held accountable (Lloyd & Bahr, 2010). The uncertainty within the literature regarding the definition of

critical thinking demonstrates a need for a more concise definition of the term. It is imperative that nursing educators each have a clear understanding of what the terms mean and how to teach students to be skilled critical thinkers. Table 2.2 lists definitions of critical thinking within the literature.

**Table 2.2. Definitions of Critical Thinking**

| Author | Definition |
|---|---|
| American Physiological Association (APA) Delphi Research Report by Facione (1990; 2011) | " a nonlinear process of purposeful, self-regulatory judgment that gives reasoned consideration of evidence, contexts, conceptualizations, methods, and criteria" (p. 2). Critical thinking is a broad topic, used to explain the way individuals interpret, analyze, and synthesize knowledge. Critical thinking skills like interpretation, analysis, evaluation, inference, explanation, and self- regulation are necessary to become effective critical thinkers |
| Abel & Freeze (2006) | Logical reasoning and thinking is used to analyze, synthesize, and evaluate relationships between components of the nursing process for the purpose of self-regulatory judgments and clinical decision-making |
| Watson & Glaser (1980) | Effective development of critical thinking requires individuals to possess a certain attitude, level of knowledge, and skill. Individuals must be able to recognize assumptions, evaluate arguments, and draw conclusions |
| Wilkinson (1996) | "Purposeful mental activity in which ideas are produced and evaluated and judgments are made" (p. 20). |
| Romeo (2010) | Process involving critical, reflective, and reasonable thinking about problems specific to nursing practice that do not have a single answer and centered on deciding what to do or believe. |
| Taylor (2006) | Sensible analysis of ideas, inferences, principles, arguments, conclusion, issues, statements, beliefs and actions. |
| Benner, Hughes & Stephen, (2008) | Nurses need to anticipate patient needs and possess an ongoing understanding of a patient's health status and care needs. This awareness requires an assessment of their understanding of the current situation, critical reflection, critical reasoning, and clinical judgment |
| Ignatavicius (2001) | "Purposeful, outcome-directed thinking that is based on scientific knowledge derived from research and other sources of evidence" (p. 32). Critical thinking involves examining options and alternatives and selecting what is best to meet a desired goal |
| Tajvidi, Ghiyasvandin, &Salsali (2014) | "Critical thinking can be defined as a logical, purposive, and outcome-oriented process driven by patients' needs and guided by professional standards, policies, and procedures as well as ethical codes and rules. It is a key component of nursing education, knowledge, and practice and is rooted in nurses' knowledge, attitudes, skills, and experiences. CT employs logic, intuition, and creativity to evaluate the evidence of certain claims and to determine whether the findings have derived from evidence or not. It also considers alternative explanations. CT enables nurses to adopt creative and unique solutions under unforeseen circumstances to make rational decisions about what they believe or do. Finally, CT entails professional accountability and also quality nursing care"160). |
| Paul & Elder (2008) | The art of analyzing and evaluating thinking with a view to improving it. |
| Scheffer & Rubenfeld,(2000) | Critical thinkers in nursing exhibit these habits of the mind: confidence, contextual perspective, creativity, flexibility, open-mindedness, perseverance, and reflection. Critical thinkers in nursing, practice the cognitive skills of analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting and transforming knowledge (p. 357). |

## Research Review

### Understanding meaning research review.

Zygmont and Schaefer (2006) completed a study on critical thinking skills of faculty and the application of those findings as they apply to nursing. The study concluded that most nursing faculty reported having no formal education on critical thinking themselves. Further, the study concluded that even though nursing faculty were not able to clearly define critical thinking, they were able to give clinical examples where nursing students demonstrated some of the characteristics of critical thinking, such as analysis, inference, and evaluation (Zygmont & Schaefer, 2006). Results concluded critical thinking is a process occurring over time and may only begin in undergraduate education. Furthermore, there may be a relationship between the ability of nursing faculty to engage in critical thinking and the ability of the learner to attain effective critical thinking levels (Zygmont & Schaefer).

The mindset of educators is imperative to development of the students' ability to critically think. If an individual views knowledge as finite, they are generally unable to think beyond the context of a concept or question (Zygmont & Schaefer, 2006). Individuals who see knowledge as relative or situational are more apt to think on multi-dimensional levels, and therefore possess critical thinking abilities (Zygmont & Schaefer). This study concluded that there are very few classroom assignments that encourage critical thinking. The research identified a need for further examination of literature focusing on student centered instruction, and recreation of experiences within the classroom (Zygmont & Schaefer). Recreating clinical situations within the classroom encourages students to use imagination and engage in reflective thinking processes, which stimulates critical thinking (Zygmont & Schaefer).

Raterink (2008) conducted a study to evaluate reported definitions of critical thinking by nurses working in long-term care and their perceived barriers to critical thinking. The results revealed a significant lack of standardized evaluations of critical thinking, therefore making it difficult for nurses to evaluate the needs and acute issues of their patients (Raterink, 2008). Nurses lack necessary skill development during their educational experiences. Further, the areas in which they work limit the enhancement of development of critical thinking skills (Raterink). The result of the study identified that participants were able to acknowledge that critical thinking provided the ability to prioritize and organize patient care, and enabled nurses to know what to do in clinical situations. Nurses concluded that teamwork significantly enhanced critical thinking, and caring for various types of patients with different levels of acuity improved their thinking abilities (Raterink). Documentation requirements removed the nurses from direct patient care which created a barrier to enhancing critical thinking skills (Raterink).

Raterink (2008) concluded nurses who participated in the study understood critical thinking, identifying characteristics, and knowledge needed to possess critical thinking skills in nursing. Nurses identified a definition of critical thinking that was reflective of the traditional concept of the nursing process. The traditional nursing process has been identified as not possessing a sound description of how nurses should approach evaluation of patient interventions (Raterink). The nursing process is linear in nature which lends itself to having a general understanding of the concept of critical thinking (Raterink). Raterink concluded general nursing education provided an understanding of critical thinking, but neglected the reflective, dynamic, and evaluative process necessary to produce sound critical thinkers.

The results of Raterink's study (2008) identified that the nurses were able to recognize characteristics of critical thinking that were represented in Facione's (1990) Delphi study. These characteristics included:

> being habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results (Facione, 1991, p. 4).

Interview responses illustrated nurses were able to describe having confidence and flexibility, as well as the ability to prioritize, and organize patient care (Raterink, 2008). Experience of others and support from others were also descriptive characteristics of critical thinking (Raterink). Overall results of the study did not conclude with a definitive definition of critical thinking. Based on the characteristics of the Delphi study, the researcher concluded that "nursing education may be doing a better job of fostering purposeful critical thinking skills than previous measurement tools have suggested" (Raterink, p. 411.)

Scalan (2006) sought to determine if critical thinking was being taught at high school, college, and university levels, or if it was even possible to do so. The objectives were to assess current teaching practices, and knowledge that faculty possessed regarding critical thinking, and identify effective teaching methods to enhance critical thinking (Scalan, 2006). The findings suggested that the majority of faculty lacked familiarity with the "definition of critical thinking" (Scalan). Scalan concluded there is a lack of instruction within teacher education to ensure future educators understand critical thinking well enough to teach their future students. Teachers

completed their education feeling that they understood critical thinking and possessed the knowledge to teach it, but did not clearly understand either concept (Scalan).

Scalan (2006) utilized the Critical Thinking Interview Profile for Teachers and Faculty (Foundation of Critical Thinking, 2011) to interview participants. The survey included multiple open-ended questions that aided in assessment of faculty's understanding of critical thinking, and its importance in instruction (Scalan, 2006). Open-ended responses revealed that individuals interviewed were aware that critical thinking and intellectual standards were important to instruction, but were unable to give clear explanations of what defined critical thinking. Responses to the interview questions were vague, instead of demonstrating clarity and detail (Scalan).

Research findings supported development of specific policy recommendations needed within teacher education to ensure that graduates understand the definition of critical thinking and effective ways to teach. Individuals seeking degrees in teaching must have a clear understanding of critical thinking and be able to explain the concept in a way that students will understand (Scalan, 2006). Policies must also include skill-building courses to enhance teacher knowledge regarding critical thinking implementation. Implementation of an exit examination in critical thinking is also necessary to ensure the preparation of future teachers (Scalan).

The definition of critical thinking has been in question for some time, with much disagreement over the definition within various disciplines, especially nursing (Tajvidi, Ghiyasvandian, & Salsali, 2014). Within the country of Iran, there is very little evidence over the context of critical thinking in nursing education. The researchers sought to define the concept of critical thinking by utilizing a hybrid model with three interconnected phases: the theoretical phase, fieldwork phase, and the final analytic phase (Tajvidi et. al, 2014). The theoretical phase

concentrated on reviewing theoretical data currently existing within the literature. The fieldwork phase consisted of identifying current definitions of critical thinking in the literature and creating an operational definition. The final analytic phase combined definitions from the theoretical and fieldwork phase to fine tune the definition of critical thinking (Tajvidi et. al). The final definition is supported by theoretical and empirical or real life data (Tajvidi et. al). A concept analysis was developed to aid in the development of a valid instrument for evaluating nurses' and student nurse critical thinking abilities (Tajvidi et. al).

The researchers' literature review yielded the definition:

> Critical thinking can be defined as a logical, purposive, and outcome-oriented process driven by patients' needs and guided by professional standards, policies, and procedures as well as ethical codes and rules. It is a key component of nursing education, knowledge, and practice and is rooted in nurses' knowledge, attitudes, skills, and experiences. CT employs logic, intuition, and creativity to evaluate the evidence of certain claims and to determine whether the findings have derived from evidence or not. It also considers alternative explanations. CT enables nurses to adopt creative and unique solutions under unforeseen circumstances to make rational decisions about what they believe or do. Finally, CT entails professional accountability and also quality nursing care (Tajvidi et. al, p. 160).

The fieldwork portion of the study included a semi-structured interview to collect qualitative data and add more context to the concept. The interview began with open-ended questions, and other probing questions to guide the interview. Some of the questions included in the interview

were “Can you tell me what you understand about the concept of critical thinking?” “How do you judge that a student is thinking critically?” “What do you consider in the clinical areas that you think the student is thinking critically?” (Tajvidi et al., 2014, p. 160). There were a total of 17 participants included within the study.

The final analytic phase consisted of combining the findings of the theoretical and field work phases. The researchers compared the categories and subcategories that were compiled in the theoretical and field work phases. Concept analysis data, antecedents, attributes, and consequences were compared to identify common themes within the two phases (Tajvidi et al, 2014). The antecedents identified were teachers’ and students’ personal characteristics and abilities along with factors related to the nursing discipline and nursing system of education (Tajvidi et. al).

Scheffer and Rubenfeld (2000) set out to define critical thinking within the nursing field. The researchers wanted to achieve complete understanding of critical thinking in nursing and identify a definition of critical thinking that illustrated the views of a diverse group of nurse experts (Scheffer & Rubenfeld, 2000). A Delphi study was utilized for the purposes of generating discussions and seeking agreements on the topic of critical thinking (Scheffer & Rubenfeld). Information from the Division of Research, National League for Nursing was utilized to obtain contact information for individuals in nursing who were employed in education and research. Potential participants were sent letters inviting them to participate in the study. A total of 135 letters were sent out, with 86 individuals agreeing to take part in the study. Participants were asked first to agree on two assumptions: one was that critical thinking in nursing can and should be defined, and the other was that critical thinking in nursing can be taught, learned, and evaluated. The study was conducted over a period of two years and consisted of five rounds. Initially participants were asked

to identify what skills and habits of the mind are imperative of critical thinking in any setting, practice, education, and research (Scheffer & Rubenfeld). Over the two year period participants worked on revising the necessary skills and habits of the mind by reviewing data clusters, identifying labels, and moving towards a consensus of definitions of critical thinking. Findings generated a strong consensus statement regarding the nature of critical thinking. The results identified and described both the affective and cognitive aspects of critical thinking in nursing by defining the habits of the mind and skills necessary for nurses to be effective critical thinkers (Scheffer & Rubenfeld). Their definition developed from the study is

> Critical thinking in nursing is an essential component of professional accountability and quality nursing care. Critical thinkers in nursing exhibit these habits of the mind: confidence, contextual perspective, creativity, flexibility, open-mindedness, perseverance, and reflection. Critical thinkers in nursing, practice the cognitive skills of analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting and transforming knowledge (p. 357).

The implications for the findings include nurses have a better understanding of the meaning of critical thinking which will enable them to analyze their own habits and skills. Also, by identifying a common language, individuals that work within the nursing field will have a clearer way to describe the meaning of critical thinking to others.

The ability to incorporate critical thinking into faculty's teaching has been an area of interest for some time, but not having a universally agreed upon definition has made it difficult to develop and assess students' critical thinking skills (Gordon, 2000). In Gordon's (2000) research, the

educators' definition of critical thinking was explored by asking questions regarding nurses' perceptions of critical thinking compared to experts in critical thinking in other disciplines. Other areas the researcher explored were the agreement among nursing educators' perceptions of critical thinking that teach within baccalaureate nursing programs and the congruency of their perceptions of critical thinking compared to the evidence within the literature (Gordon).

The exploratory descriptive study utilized a questionnaire based on previous designs within the literature. There were 305 potential participants with 201 questionnaires returned, which yielded a 51% return rate. Initially participants were asked to answer demographic questions. Secondly, participants were asked to rate on a Likert scale the degree in which they agreed if items were critical-thinking skills or dispositions (Gordon, 2000). Then participants were given a list of Facione's (1990) critical thinking skills and were asked to rate if they felt these items were the same as critical thinking, partly critical thinking, or not critical thinking. Finally, participants were asked to rate on a Likert-scale if they agreed with statements regarding critical thinking that are within the literature (Gordon).

Findings suggested that nursing educators who teach in a baccalaureate nursing perceived that the characteristics of critical thinkers were similar to what the non-nursing critical thinking experts identified (Gordon, 2000). Nursing educators continued to emphasize the use of the nursing process, decision-making, and clinical reasoning as critical thinking skills, excluding the skill of interpretation all together (Gordon). Nursing educators viewed empathizing and sensing as critical thinking skills, whereas the non-nurse experts did not. These skills are necessary to assess patient situations and develop plans of care to meet the patient's needs (Gordon). Nursing educators

emphasized that important critical thinking skills include communication, speaking, writing, reading, and integrating. The largest variation was between nursing educators and non-nursing experts on planning, as planning is part of the nursing process, therefore making it an important skill necessary for critical thinking (Gordon).

These findings established that nursing educators perceive that critical thinking is consistent with the nursing process, decision-making, diagnostic reasoning, and the research process (Gordon, 2000). Results established that nurses' perceptions of critical thinking differ from the expert panels of critical thinking from other disciplines. Implications for further study suggest that nursing educators need to examine the definitions of the concepts on which they are evaluating their students. Furthermore, nursing educators need to explore the origins of the concept not only in nursing, but other research and theoretical aspects in an effort to ensure that all disciplines understand the true definition of critical thinking (Gordon).

**Figure 2.5. Understanding Meaning Summary**

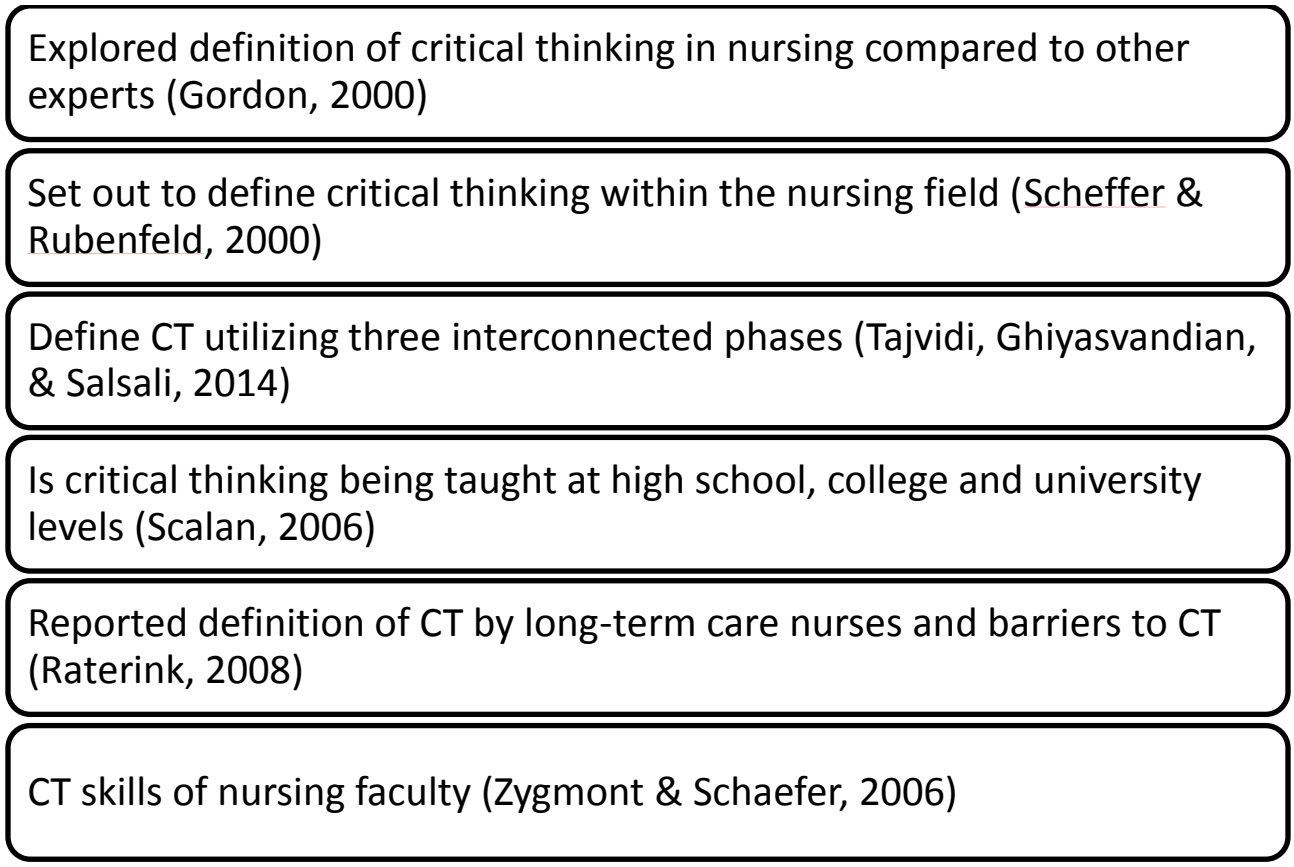


*Figure 2.5.* This figure represents a summary of research pertaining to the understanding of the meaning of critical thinking.

**Teaching methods research review.**

Brunt (2005) reviewed multiple teaching methods to evaluate the best approaches for aiding development of critical thinking. Research concluded that reflective writing, clinical discussions, clinical nursing practice, and concept mapping aided in enhancing critical thinking (Brunt, 2005). In order to aide in the development of critical thinking it is important to have an environment that fosters the thinking process. Faculty must seek concepts that encourage and integrate critical

thinking into their practice (Brunt). The result of utilizing effective strategies enhances nurses' reasoning and clinical judgment (Brunt). It is vital that nursing educators emphasize the importance of continued acquisition of critical thinking once a nurse has completed the education process (Brunt).

Utilization of effective teaching methods is necessary to enhance critical thinking skills in nursing students (Walsh & Seldomridge, 2006). Walsh and Seldomridge (2006) studied the current role and place of critical thinking in undergraduate nursing programs and examined whether critical thinking was strengthened. The skills necessary to develop critical thinking are open mindedness, analyticity, systematicity, confidence, inquisitiveness, and maturity (Walsh & Seldomridge). In order for these skills to be developed, it is imperative that various teaching methodologies, such as concept mapping and journaling, be implemented (Walsh & Seldomridge).

Walsh and Seldomridge (2006) established that there were multiple teaching methodologies less effective toward enhancement of critical thinking. Lecture, fact feeding, and multiple-choice tests tend to suppress the learning process (Walsh & Seldomridge, 2006). Traditional nursing faculty continue to feel the need to cover all course content, but there is typically inadequate class time, and insufficient preparation time to achieve this goal (Walsh & Seldomridge). Consequently, faculty must acknowledge that teaching everything is impossible and spoon-feeding is inefficient. Teachers should learn to teach by principles and concepts that are superior to previously implemented teaching methodology (Walsh & Seldomridge).

Oja (2010) conducted an evidence review regarding problem-based learning in the clinical settings and the implications for improving critical thinking in nursing students. Problem-based learning is a student centered teaching method utilized to guide students to problem solve with real life situation and collaboration with others within the classroom (Oja, 2010). Problem-based learning includes presenting the real-world situation, group work, and discussion along with student driven solutions to the problems. Oja first initiated a PICO question, which stands for Population, Intervention, Comparison, and Outcome. The PICO questions were "In prelicensure nursing students in the clinical setting (P), does the use of problem-based learning (I) versus the traditional model of clinical nursing education (C) improve critical thinking (O)? A comprehensive literature review was conducted to answer the stated PICO question. Findings concluded that there were only a small number of studies that illustrated a clear relationship between problem-based learning and critical thinking in prelicensure nursing students. Oja's findings suggest that problem-based learning does show evidence that critical thinking is improved and that there is a strong need for further research within this area of study. The review demonstrated that nursing educators need to be open to other teaching models that will enhance their students' ability to think critically (Jenkins, 2011).

Much like the articles reviewed within nursing research, other healthcare entities are facing similar challenges within the industry and education. In Beistle and Palmer's research (2014), the evidence indicated that dental hygiene faces many of the same issues that nursing education is encountering regarding lecture and rote memorization with the ultimate goal of students passing national licensure exams. Along with this issue, the researchers also discuss how dental hygiene

curriculum is overcrowded and contains redundant information that proves not to aid in an individualized learning environment for the student (Beistle & Palmer, 2014).

Beistle and Palmer (2014) set out to explore the perceptions of dental hygiene faculty regarding critical thinking skills and integration of critical thinking within the current curriculum. The researchers felt that it was difficult to make a change within dental hygiene programs without first examining dental hygiene faculty's understanding of critical thinking (Beistle & Palmer). Researchers sought to answer questions pertaining to the definition of critical thinking and the process for becoming a critical thinker, as well as faculty's descriptions of how to integrate critical thinking and strategies for teaching the concept (Beistle & Palmer). The challenges dental hygiene faculty faced were also addressed. Data was collected from 20 participants from 11 accredited dental hygiene programs. Data collected was obtained from questionnaires, and individual follow-up phone interviews.

Overall results identified that faculty generally understood critical thinking, but their perceptions of the meaning often varied. Research uncovered that most faculty utilized several teaching methods to enhance critical thinking, but often navigated toward the use of case studies (Beistle & Palmer). Participants identified that more faculty professional development was needed, along with time to build critical thinking skills into the current curriculum (Beistle & Palmer). Participants expressed an uncertainty with what others were doing regarding implementing critical thinking within the classroom, along with not really knowing how well things were going. Information was also uncovered regarding the disposition of today's students. Many students were

hesitant to engage in learning activities, and others just wanted to be "spoon fed" (Beistle & Palmer).

Tescoro (2012) utilized the Developing Nurses Thinking (DNT) educational model to aid students in correctly interpreting patient data by measuring diagnostic accuracy. The DNT model addresses three environments that influence thinking. These include the internal and external environments, along with the effect of experience attained through repeated practice (Tescoro, 2012). The internal environment is where domain knowledge is obtained and critical thinking occurs. The external environment is where patient safety is examined, and the effect of experience occurs through repeated practice utilizing the thinking process along with the domain of knowledge (Tescoro). This quasi-experimental study tested the effectiveness of the DNT model on students' clinical reasoning to achieve patient safety (Tescoro). Literature reviewed focused on patient safety, domain knowledge, critical thinking processes, repeated practice, and diagnostic accuracy (Tescoro).

The researcher utilized the quasi-experimental design with control and intervention groups, pretest and posttest with the use of one independent variable, the DNT model, and one dependent variable, accuracy of nursing diagnosis (Tescoro, 2012). Students were recruited if they were in the lecture portion of their first clinical course. There were a total of 99 eligible students enrolled in 14 clinical courses from two baccalaureate nursing programs. Case studies were utilized as instruments within the study. Four case studies were written that were realistic, and two sets of parallel cases were developed to measure students' diagnostic accuracy with respiratory and oxygenation problems. A pretest was given to the students related to the care of patients with

respiratory and oxygenation problems that had been taught in both schools. Students then attended regularly scheduled clinical rotations for the next two weeks. One group followed the typical post conference format of discussion and questioning sessions. The other group post conference format was conducted utilizing the DNT worksheet, short case studies, and student clinical data. Results of the study supported the initial researcher's hypothesis that the use of the DNT model improved the accuracy of students choosing the priority nursing diagnosis over the typical post conference format (Tesoro). This study concluded that nursing faculty struggle with aiding nursing students to think like a nurse. Utilizing the DNT model, which includes concepts of patient safety, domain knowledge, critical thinking process, and repeated practice, can assist students to develop effective thinking, improve diagnostic outcomes, and as a result improve patient safety (Tesoro).

Wagner (2014) reported on the necessity of engaging learners in a kinesthetic manner to aide in improving classroom-acquired knowledge. Due to the rapidly changing healthcare system, and its complexities, it has become necessary to stimulate critical thinking and improve clinical application by utilizing kinesthetic learning activities (Wagner). Furthermore, due to the increasing diverse student populations at universities and community colleges, variations in ages, and backgrounds, a challenge has presented itself to mesh teaching methods with the varying types of learners within the classroom (Wagner).

Within this study, junior baccalaureate nursing students in their first semester of adult health courses participated in a classroom based kinesthetic learning activity (Wagner, 2014). The learning activity was designed to reinforce previous reading assignments about cardiac function and other disorders (Wagner). A large outline of the anatomical heart was placed on the floor within the

classroom. Red tape was used to outline the left heart structures, and blue tape to outline the right heart structures. Other pieces made out of cardboard were utilized to represent other aspects of the hearts structures, such as the mitral, tricuspid, aortic, and pulmonic valves. Individual students were assigned various roles that related to the function of the heart. Some students were asked to walk in a path that represented normal circulation, and blood flow. Students also demonstrated and acted out cardiac muscle stretching, preload and afterload (Wagner).

Evaluation of this learning activity was conducted in the classroom and clinical setting. Faculty concluded that class discussion was more in depth and student engagement was improved (Wagner, 2014). Students were better able to understand interventions regarding cardiac medications and identify relevant outcomes for patients with cardiac disease. Students showed improved exam scores in relation to their previous exams (Wagner). Within the clinical setting instructors evaluated improved student application of the newly attained knowledge through more accurate concept maps, ability to recognize symptoms, and proper clinical care for the cardiac patient. Findings showed that by utilizing kinesthetic learning activities, students may enhance information transfer, problem solving, critical thinking, understanding of key concepts, and overall approval with teaching methods (Wagner).

Critical care nurses must possess the ability to think quickly and make decisions that can be life or death for their patients. This need to make these critical decisions requires critical care nurses to possess well-developed critical thinking skills. Rogal and Young (2008) sought to identify if critical thinking scores on the California Critical Thinking Skills Test (CCTST) increased after completing a postgraduate critical care course.

Researchers utilized a pretest posttest format with 31 postgraduate nurses working in critical care. Participants were enrolled in a 12 month, full-time accredited specialized critical care program. The course included theoretical classroom format, as well as clinical practice rotations. Prior to beginning the course the CCTST was administered to measure the students' critical thinking abilities. The CCTST measures the students' ability to analyze, evaluate, infer, and inductively and deductively reason when presented with a problem. After completion of the course, a post CCTST was administered to the students. A pretest and posttest comparison of scores was completed and the results revealed a mean score of 18.5 at the start, and a mean score of 19.7 at the completion of the course. Findings indicated that there was not a significant difference between pretest and posttest scores (Rogal & Young, 2008). A slight improvement in the average scores between the pretest and posttest were observed. More than half of the participant's showed some improvement in their critical thinking skills, but a quarter of the participant's scores actually declined. The researchers established that the decline in scores may be related to the exam being administered on the final class day. Students may have been fatigued and experiencing reduced motivation. Researchers' concluded that there remains a need to ensure that educators include critical thinking development into their current curriculum.

Schaber and Schanedling (2012) conducted a study to measure online skill development in an online occupational therapy course. Four sections of the course were evaluated based on the elements of Paul and Elder CT Model. These elements included Intellectual Standards, Elements of Reasoning and Intellectual Traits. Students' perceptions of their ability to critically think was evaluated. The online occupational therapy was designed for students to be able to master the objectives of knowledge, skills, and attitude (Schaber & Schanelding, 2012). The course consisted

of seven online learning activities the included each element of Paul and Elder CT Model. Measurement of critical thinking was accomplished by students completing six learning activities in seven online modules (Schaber & Schanedling). Grading was completed by utilizing a four-point rubric to measure critical thinking across the domains, which included learning activities, Glaser's Critical Thinking Process, Paul and Elder's Critical, and Thinking Domains. The results identified a significant improvement in student CT from one learning module to the next. Student feedback was positive regarding critical thinking when the instructor clarified the reason for the learning activities. When clear instructions and strong course design were presented to students they were able to gain knowledge of theoretical concepts which aided in their ability to learn to critically think (Schaber & Schanedling). This study revealed that an increase in CT skills was demonstrated by improvement in grades on learning activities. The results of this study reinforced that having structured course design is instrumental in assisting students to increase their ability to critically think (Schaber & Schanedling). It was also illustrated that grading rubrics should incorporate CT concepts that focus on instructor feedback, which lead to the developing they key critical thinking skills of clarity, confidence and humility (Schaber & Schanedling).

Researchers conducted a quasi-experimental pre-test/post-test design study to determine if critical thinking was increased in Peer-Led Team Learning (PLTL) in undergraduate science courses (Snyder & Wiles, 2015). Peer-Led Team Learning (PLTL) is a teaching method that gives small group instruction, which can be introduced in conjunction with traditional lecture (Snyder & Wiles). Biology students that obtained an A or B in their introductory biology course were approached to participate. Seventy-five students participated in this study. Every student was given the California Critical Thinking Skills Test (CCTST) prior to the course content being introduced.

A course was offered pertaining to educational research literature on students and problem solving activities (Snyder & Wiles). After peer-leader training, leaders would facilitate a one-hour PLTL session for their assigned group of students. The peer-leaders guided and supported students through problem solving activities. Results of the study identified that 62% of the peer-leaders perceived that critical thinking skills had improved. When asked open ended survey question regarding what contributed to their change in critical thinking, the themes of interacting with others, utilizing different approaches to learning, and problem solving emerged (Snyder & Wiles).

The purpose of Orique and McCarthy's (2015) research was to identify if a relationship existed between critical thinking, the use of concept maps (CM), and problem based learning (PBL) in the development of care plans in undergraduate BSN nursing students. A total of 46 students participated in this research study. The researchers conducted a quasi-experimental pre-test/post-test experiment using the Holistic Critical Thinking Scoring Rubric (HCTSR). Students were asked to complete four care plans at various times during the course (Orique & McCarthy, 2015). The researchers intended to determine if using CM during care plan development increased CT and if using PBL during care plan development increased CT. The statistical results revealed that there was a significant increase in CT during phase 4 of this experiment. The findings indicate that CM and PBL are effective methods to acquire CT. Concept maps and problem based learning lead to students becoming self-directed, and enhance non-linear thinking (Orique & McCarthy).

Newton and Moore (2013) conducted a quantitative exploratory descriptive study for the purpose of describing critical thinking skills in basic baccalaureate (BSN) and accelerated second-degree (ASD) nursing students. Their literature review revealed very little related to critical

thinking developmentally or as an evolving process (Newton & Moore, 2013). The study was conducted utilizing 4 cohorts of first semester BSN students, 2 groups of basic BSN and 2 groups of ASD students. The Critical Thinking Assessment Entrance (CTAE) from Assessment Technologies Institute (ATI) was utilized to measure students' critical thinking skills. The standardized critical thinking exam was administered after one month of course work. Results illustrated that both cohorts began the BSN and ASD program with high scores (Newton & Moore). The results of the CTAE did indicate that the ASD students were somewhat higher than the BSN student. Newton and Moore concluded that a cohort specific pedagogical approach needed to be developed in order to aid in the facilitation of critical thinking in nursing. Nurse educators need to incorporate new teaching strategies, but adapt their methods to meet the theoretical and clinical experiences of the students (Newton & Moore).

Nickitas (2012) explored and introduced an awareness of ways to utilize questioning within nursing education. Employing questioning as a teaching method assists in the promotion of ethical and clinical reasoning that aids in improving patient care and safety (Nickitas, 2012). The use of questioning as a teaching method enhances student engagement by encouraging students to argue their thoughts, ideas, and decisions (Nickitas, 2012). Nickitas emphasized that it is imperative that students understand that the correct answer is not always the most important, as much as asking the right question to eventually conclude with what is right. If the student learns to ask empowering, thoughtful questions they will become astute thinkers and problem solvers (Nickitas).

There must be a culture within nursing education that encourages students to ask questions (Nickitas, 2012). Nursing educators should welcome student inquiries and encourage them to bring

thought provoking questions to class. Nickitas insists that nursing educators must "create a culture of asking", and promote that all questions are welcome, inside and outside of the classroom. Nurse educators must learn to ask questions in strategic, skillful ways that assess student learning, attitudes, values, and feelings (Nickitas). Utilizing questioning as a teaching method must be promoted in a manner where the learning environment is considered safe and the student can reflect on their learning (Nickitas).

Tofade, Elsner and Haines (2013) reviewed the literature pertaining to the utilization of practice strategies for the effective use of questioning. They determined that well-crafted questions lead to new understanding, promotes comprehension, and generation of discussion that stimulates understanding of subject matter (Tofade, Elsner & Haines, 2013). Within their discussion, it was surmised that educators tend to pose questions at lower-levels which require students to only recall upon factual knowledge, rather than higher-order questions that require analysis and evaluation of concepts (Tofade et. al).

**Figure 2.6. Teaching Methods Summary**

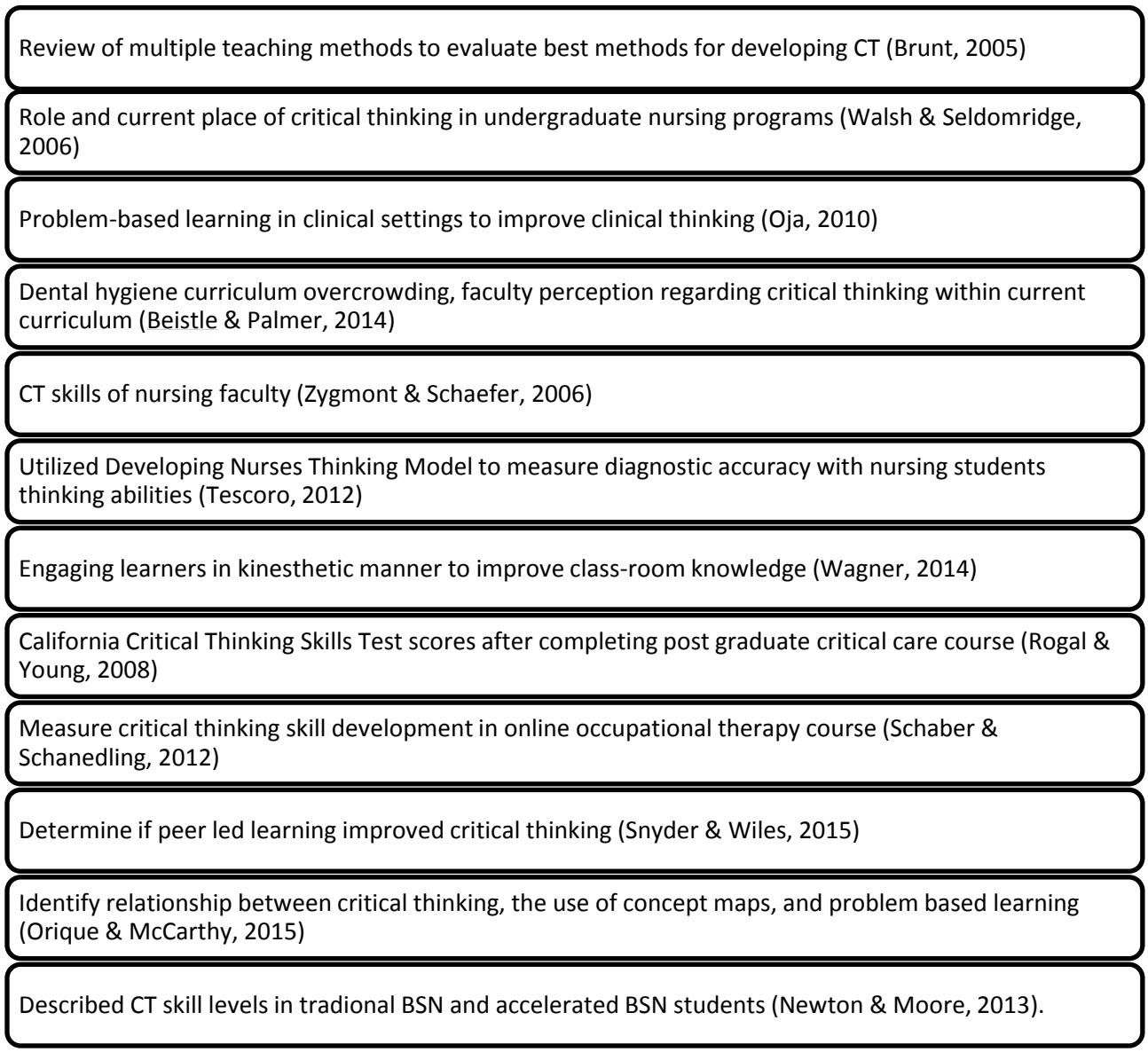


*Figure 2.6.* This figure represents a summary of the literature reviewed regarding teaching methods, not only nursing but other entities.

## Conclusion

This literature review focused on the changes in healthcare that have evoked a need for critical thinking skills to be a part of a nurse's educational preparation. Changing patient demographics, complex illnesses, and enhanced technology have led to a need for nurses to be sound critical thinkers (Giddens, 2007; IOM, 2011; Benner, Hughes & Sutphen, 2008; Wagner, 2014). The concept of critical thinking is not in its infancy. Socrates introduced the concept 2400 years ago (Paul, 1985). Although this concept has been recognized for many years, the literature revealed a consistent lack of clarity within the definition of critical thinking (Lloyd & Bahr, 2010; Knight, 2007; Gul & Boman, 2006; Romeo, 2010; Jones, 2010). This murky definition has led to the focus of this study. Facione (2011) and Paul's (1990) definitions and frameworks have been summarized within the literature review. These frameworks and definitions will be utilized within the study findings to aid in identification of themes from the participants' responses. The literature consisted of articles introducing the concepts of instruction of critical thinking but suggested that lack of clarity of definition made the concept difficult to measure, and difficult to measure in terms of a nursing educator.

# Chapter 3

## Methods and Procedures

### Introduction

The intent of this phenomenological study is to identify the lived experiences of nursing educators within Nebraska at community colleges regarding how they assist nursing students to develop critical thinking skills within the classroom. The study examined the nursing educators' meaning of critical thinking, the attributes good critical thinkers need to possess, and the challenges nursing educators face when implementing critical thinking teaching methods within the classroom.

Support for a qualitative phenomenological study is present within this chapter, and within this chapter the sampling methods and participant criteria along with exclusions are explained. In addition, the steps taken to gather data and maintain quality within the study are explained.

### Research Design

The research design chosen for this study was qualitative phenomenological. Phenomenological design has been chosen to identify the lived experiences of nursing educators utilizing critical thinking within the classroom setting. Creswell states (2013) "a phenomenological study describes the common meaning for several individuals of their lived experiences of a concept or phenomenon" (p. 76). Qualitative research is conducted to describe human experiences, concepts as a whole, and the basis of knowing (Burns & Grove, 2009). Phenomenological research design involves individuals returning to experiences in order to obtain a comprehensive description that will aid in identifying the essence of the lived experience (Moustakas, 1994). Consequently, the use of a qualitative phenomenological research design is appropriate for the purposes of this study because the lived experiences of nursing educators in relationship to how they utilize the concept of

critical thinking within the classroom was examined. This phenomenological qualitative research study aids in identifying the common definition, describing the human experience, and understanding how the concept of critical thinking is introduced into the classroom by nursing educators. This study identified the nursing educators shared meaning of critical thinking, characteristics needed by the learner to be an effective critical thinker, and challenges to integrating critical thinking into the classroom.

Research was obtained in a natural setting, with the researcher as the key instrument in the collection of the data, therefore making a qualitative approach an appropriate research design (Creswell, 2014). The researcher had sole responsibility for examination and compilation of the data obtained from an online questionnaire. The use of inductive and deductive data analysis was utilized to identify patterns, categories, and themes from the faculty responses to the questionnaire (Creswell). Implementation of data collection methods and analysis aided in the development of a complex picture of the lived experience of each nursing educator utilizing the concept of critical thinking within the classroom setting (Creswell). The central research question was

> What are nursing educators' lived experiences in assisting nursing students to develop critical thinking in the classroom at community college associate degree nursing programs in Nebraska?

The Sub Questions:

1. What teaching methods do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska utilize to develop critical thinking in nursing students in the classroom?

2. How do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe the meaning of critical thinking?
3. What attributes do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe as necessary for students to be able to critically think?
4. What challenges do nursing educators who teach in nursing programs within community associate degree programs face when integrating critical thinking into the classroom?
5. How do nursing educators who teach in nursing programs within community college associate degree programs know that their teaching methods are effective at enhancing critical thinking in students in the classroom setting?

**Data Collection Methods**

A phenomenological study usually includes a long interview method for data collection and data are collected on the central research question (Moustakas, 1994). The interview is usually informal, interactive and open-ended questions (Moustakas, 1994). An online questionnaire was used to gain substantial input from nursing educators related to critical thinking. Open-ended questions were asked to gain information related to the overarching research question and sub questions within the study. The questionnaire included demographic information and open-ended interview questions with room for a typed written response from participants. The use of a surveying system called Survey Monkey® aided in circulating the questionnaire to the participants. The letter introducing participants to the purpose of the study and questionnaire are located within the Appendix B.

**Participants/sample and setting.**

The collection of the research occurred by first utilizing a purposeful sampling strategy. This sampling process was utilized since the individuals can be selected and informed of the intent of the research problem and central phenomenon of the study (Creswell, 2013). All participants were nursing educators, which according to Creswell (2013) is criteria for utilizing purposeful sampling because the participants possess similar knowledge and education.

Eight nursing educators participated in this study. All nursing educators that participated taught at the associate degree level within the community college setting in Nebraska. The associate degree nursing level within community colleges was chosen as the focus of this study in an effort to obtain a baseline for future research. The researcher wanted to gain a general idea of nursing educators understanding of critical thinking, and how they were utilizing it within the classroom. All of the participants held a minimum of a baccalaureate degree in nursing. Seven out of the eight participants held a master's degree in nursing, and one participant was in the process of completing their MSN. Nursing educators included within this study only taught at the associate degree level and within the community college setting. Each of the participants possessed a current, active nursing license and is full-time faculty at a community college within Nebraska. Within the online survey, a question was posed regarding if the participant is full-time or part-time. This question was presented for the purpose of preventing part-time faulty from participating in this study. In the event that a participant indicated that they were part-time, the survey would have prevented them from completing the questionnaire. Criterion sampling occurs when every case meets some condition (Creswell). Each individual included within the sample for this study possessed the same

criteria designation as nursing faculty. Participants may have experience teaching at more than one level of nursing education.

After analysis of the participant responses it became evident that the eight surveys returned yielded sufficient information to answer the proposed central research question and sub questions. The amount of returned surveys estimated to reach saturation for the purposes of this study was eight to fourteen. Qualitative research is not usually generalizable information, but it only ceases once information from data collection becomes detailed and clear (Creswell).

The sample of participants was obtained by utilizing the Nebraska state board of nursing web site list of all of the community college nursing deans and directors email addresses for each school in Nebraska. There are 6 community colleges within the state located in Table 3.1.

**Table 3.1. Community Colleges in Nebraska**

| **Community Colleges in Nebraska** |
|---|
| Central Community College |
| Mid-Plains Community College |
| Northeast Community College |
| Metropolitan Community College |
| Southeast Community College |
| Western Community College |

**Online Survey Procedure.**

An electronic questionnaire (See survey in Appendix B) was used to obtain data aimed at answering the central question and sub questions of this study. A general sample size for a phenomenological study ranges from three to ten participants (Creswell, 2014). Collection of data concluded when eight surveys were returned from the community colleges in Nebraska. The range

of eight to fourteen was used to obtain information from an adequate number of participants so the central question and sub questions can be analyzed in depth. Additionally, having sufficient sampling aids in ensuring that the central concept was identified, and lends itself to further research in nursing education.

The sample was chosen utilizing criterion-based sampling (Creswell, 2013). The criteria for each participant included holding a position as a nursing educator within nursing academia at a community college in Nebraska. The purposeful sampling was completed by asking the deans or directors of the community colleges in Nebraska to distribute the survey via email to their faculty members who are full time and possess a minimum of a BSN working towards an MSN or have a completed MSN degree. Contact with the deans of the schools of nursing was initiated by sending an email explaining the intent of the research with a link to the questionnaire (email located within the Appendix A). Deans and in some cases directors were asked to forward the survey to nursing educators. Nursing educators were given a time-frame of two weeks to return the survey. Initial survey returns yielded five surveys. The data collection did not cease until eight to fourteen completed surveys were returned and extensive detail pertaining to each research question was obtained (Creswell). Qualitative research is not usually generalizable information, but it only ceases once information from data collection becomes detailed and clear (Creswell). Since the minimal amount of surveys were not returned within 2 weeks, verbal contact was made with the dean or director of the community colleges to ensure that the intent of the study is communicated to the participants. Once the second contact was made with the deans or director, three more surveys were completed for a total of eight surveys returned.

On the Survey Monkey ® online survey the participants had the option to voluntarily provide contact information. By providing contact information, participants were consenting to an interview regarding clarification of their previous survey responses. The interview procedure for this phase of data collections can be located in the following section. There were eight surveys returned via Survey Monkey ®, with no participants consenting to an interview.

**Interview procedures.**

Participants were forwarded an email from the deans and directors of the community colleges in Nebraska asking for their participation in on online open-ended survey. At the completion of the survey, participants were asked if they would like to volunteer to be contacted for further questioning and clarification regarding their initial responses. If the participants opt to be contacted, they provided email or phone contact information on the initial online survey. The phone interview was voluntary, therefore the expectation was that not all participants will be a part of the phone interview process. Eight surveys were returned with no participant providing email contact information for further questioning.

If a second interview was warranted, the researcher would have contacted the participant via email or phone to set up a time for the phone interview. Interviewees would have been notified verbally that by giving consent to be contacted, they were giving consent to continue to participate in the study. The participants could have withdrawn from the interview at any time, and asked for their responses not to be utilized within the study.

If participants would have agreed to further questioning, the researcher would have scheduled a 30 minute time slot for the participants and contacted them using the contact phone

number that was provided during the initial survey phase of the project. The interview protocol would have been reviewed with the participants, and prior to beginning the interview the participants would have been asked if they have any questions (Interview protocol is located in the Appendix B). The researcher would have asked open-ended interview questions with the intent of clarifying and increasing the depth of the participants' previous responses (Interview questions are located in the Appendix B).

The phone interviews would have been conducted by asking verbal permission to place the participants on speaker phone. The researcher would have utilized the interview protocol form to type the verbal responses from the questions into a word processing document. During this phone interview the researcher would have been aware of the identity of the interviewee, and the initial Survey Monkey ® responses from this participant would have been printed out for the purposes of collecting more data. If the interview would have been necessary, once the interview was completed, the Survey Monkey ® results and phone interview responses would have been coded so that the identity of the participants is unknown to the researcher. The paper Survey Monkey ® results would then be shredded and the only record of responses would be kept within a password protected computer system. Once the interviewee's responses were transcribed, the researcher would email the responses out to the participant for their review (See Appendix B). The participant would have been asked to clarify in type written form anything that they felt was taken out of context or needed revising. The participant would have been asked to review and send back responses within one week. If responses were not returned in one week, the researcher would assume that there were no corrections. The information regarding return of edited transcripts would

have been presented to the participant at the end of the interview and also be included in the response email that would have been sent out once the transcripts were completed by the researcher.

**Ethical Considerations**

Prior to conducting research, the researcher applied to College of Saint Mary institutional review board (IRB) for approval. The IRB conducted an analysis of the research proposal to determine if the study posed a potential risk or harm to participants (Creswell, 2013). The research study was approved by IRB at College of Saint Mary and assigned IRB # CSM 1510.

The initiation of the study began with participants receiving an email with information regarding the general purpose of the study (Appendix A). The email contained a detailed explanation of how the data will be used to answer the central question and sub questions of the study. Participants were informed that involvement within the study is strictly voluntary, and they may refuse to answer the attached questionnaire. Study participants were informed via email that if they choose to proceed with the questionnaire, they were giving permission for their answers to be used for the purposes of the research. A link to the risks and benefits of the study was included within the email (Appendix A).

Participation was strictly voluntary and individuals were informed that they could withdraw at any time. If any questions should arise during the study, the researcher's contact information was provided. Questionnaire responses remained anonymous by using the Survey Monkey ® system and the researcher has no knowledge of which individuals responded to the survey unless they chose to provide their contact information for follow up regarding the survey responses. The study results were tabulated by utilizing Survey Monkey ® and data is maintained in a secure manner and

will continue to be maintained for seven years. These records are maintained electronically on a password-protected personal computer with a backup system.

**Data Quality Measures**

The researcher implemented measures aimed at ensuring that the research represents quality scholarly work. Triangulation is a validity method employing multiple sources or methods to provide verifiable evidence (Creswell, 2013). Triangulation was used by paralleling participant responses with current trends in the research regarding critical thinking. The researcher utilized Facione's (1991) definition and Paul and Elder's (1999) definition, as a means to identify parallels within participant responses and current research.

The participants' responses were analyzed for themes that consisted of the words that are present in Facione's (1991) definition of critical thinking. The operational definition used for critical thinking is "a nonlinear process of purposeful, self-regulatory judgment that gives reasoned consideration of evidence, contexts, conceptualizations, methods, and criteria" (Facione, 1990, p. 2). Critical thinking is a broad topic used to explain the way individuals interpret, analyze, and synthesize knowledge. The skills of interpretation, analysis, evaluation, inference, explanation, and self- regulation are necessary to become effective critical thinkers (Facione).

Participants' responses were compared to Paul and Elder's (1999) definition of critical thinking in an effort to identify parallels within the literature. Paul and Elder define critical thinking as "The art of analyzing and evaluating thinking with improving it" (p. 37). According to Paul and Elder a well-educated critical thinker will raise vital questions and problems, gather and assess relevant information, identify well-reasoned conclusions, think open-mindedly, and communicate

effectively with others. Possessing strong critical thinking involves effective communication and problem solving skills (Elder & Paul).

To ensure quality measures were maintained, the data collected was evaluated in regards to the other operational definitions listed within this study. The central question being asked within this qualitative research study pertains to the lived experiences of nursing educator assisting students to develop critical thinking skills in the classroom. Each operational definition was utilized to ensure quality measures were being maintained. The operational definitions were developed based on evidence in the research regarding each variable within the research questions. Survey responses were evaluated based on attributes of critical thinkers, challenges faced integrating critical thinking into the classroom, effectiveness of teaching strategies, nursing educators shared experiences, and the meaning of critical thinking.

Once the data was obtained and analyzed, participant perspectives, along with contrary findings were reported in Chapter 4 and 5 of this dissertation. The research findings are reported honestly and in a clear, straightforward manner (Creswell, 2013). Comparison of current definitions of critical thinking are illustrated within a table and the themes arising from the research are compared to current definitions within the literature.

Another validation method used by the researcher is peer review or debriefing. This method consists of having someone play the part of the "devil's advocate," someone to ask the hard questions and keep the researcher honest (Creswell, 2013). This individual is present to ask questions regarding methods, meanings, and interpretations (Creswell). This method has been utilized by collaborating with committee chair to provide an audit trail consisting of feedback and revisions.

**Data Analysis Procedures**

Data collection was organized and analyzed utilizing Creswell's (2014) Data Analysis Spiral. The first spiral is data managing. Data was managed by using NVivo 10®. NVivo 10® is qualitative software that manages and analyzes, sorts, and compiles data in a structured format (QSR International, 2014). The software provides a workspace and tools to enable easier classification, categorization, and arrangement of information (QSR International). The second step is reading and memoing (Creswell, 2014), which consists of reading the participant responses entirely several times so that the researcher can be immersed in the details. Reading and memoing enabled the researcher to get a sense of the whole, before responses were broken down into smaller themes (Creswell). Major ideas or words that standout within the text of the participants' responses began to standout to the researchers as the information was reviewed several times. The next step was describing, classifying, and interpreting data into codes and themes (Creswell). Coding consists of grouping text within a database (Creswell). Codes may include information that the researcher expects to find before the study even begins, surprising information that was not expected, and information that is interesting or unusual (Creswell). From the codes that have been aggregated, common ideas or themes were created. Themes will be more manageable and easier to integrate and interpret within the final descriptive narrative of the study (Creswell). The final step in the Data Analysis Spiral is representing and visualizing the results of the study (Creswell).

Once the themes were identified, the researcher sought to answer the central question and the sub questions presented within the research design. The data includes shared participant interpretations of the key concept critical thinking. Data analysis organized the responses of participants into meaningful themes, and explain the patterns and themes (Creswell, 2014). The data

was organized categorically, reviewed repeatedly, and continually coded throughout analysis process (Creswell).

## Conclusion

The research method has been detailed within this chapter. A phenomenological qualitative research method was devised for this study due to the researcher's interest in understanding the lived experiences of the nursing educator teaching critical thinking within the classroom setting. The plan for data collection, and data analysis has been detailed, along with information regarding ethical considerations and data quality measures.

# Chapter IV

# Results

## Introduction

A phenomenological design is utilized for the purposes of this study to identify the lived experiences of nursing educators utilizing methods to teach critical thinking within the classroom setting. The phenomenological study aids in the identification of the common meaning of individuals lived experiences of a concept or phenomenon (Creswell, 2013). This phenomenological research design involved individuals being asked to answer an open-ended survey regarding their experiences with critical thinking in the classroom in order to obtain a comprehensive description that will aid in identifying the essence of the lived experience (Moustakas, 1994).

The results of this phenomenological qualitative research study identifies the common meaning and describes the human experience and understanding of how the concept of critical thinking is utilized within the classroom by nursing educators. In an effort to identify the common meaning and understanding, several sub questions were introduced to aid in gaining the true essence of the lived experience of critical thinking within the classroom. These sub questions explored the nursing educators shared meaning of critical thinking, attributes needed by the learner to be an effective critical thinker, teaching methods and their effectiveness at developing critical thinking, and challenges to integrating critical thinking into the classroom. Within this chapter, participant responses were analyzed for the purposes of identifying common statements and themes. Figure 4.1 illustrates Creswell's Data Analysis Spiral (2013) that the researcher utilized to assist with the data analysis process.

***Figure 4.1.*** **The Data Analysis Spiral (Adapted from Creswell, 2013)**

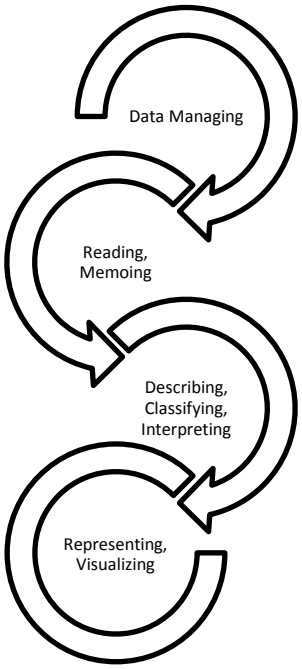


*Figure 4.1* This model represents Creswell's (2014 Data Analysis Spiral

Data collection was organized and analyzed using Creswell's (2014) Data Analysis Spiral. The first spiral is data managing. Data was initially managed by using NVivo 10®. The data was collected utilizing an open-ended survey through SurveyMonkey ® to distribute and collect results. Data was initially exported from SurveyMonkey ® to NVivo 10®. Data was managed by first initiating nodes within NVivo 10 ® based on the sub questions that were developed. NVivo 10® initially provided a workspace and tools that permitted easier classification, categorization, and arrangement of the information that was obtained from the surveys (QSR International). The second step of the data analysis spiral is reading and memoing (Creswell, 2014), which consisted of

reading the participant responses several times so that the researcher could be immersed in the details. Reading and memoing allowed this researcher to get a sense of the whole, before responses were broken down into smaller themes (Creswell). Major ideas or words within the text of the participants' responses began to standout to the researcher as the information was reviewed several times. The next step used for data analysis is describing, classifying, and interpreting data into codes and themes (Creswell). Coding consisted of grouping text within a database within NVivo 10®, then exporting the information into

Word® documents. (Creswell). Codes included the information that the researcher expected to find before the study began (Creswell). The codes have been aggregated and common ideas and themes illustrated. Themes become more manageable and easier to integrate and interpret within the final descriptive narrative of the study (Creswell). The final step in the Data Analysis Spiral is representing and visualizing the results of the study (Creswell). A segment of the representation of the themes is completed within Chapter IV, with concluding results within Chapter V.

Initially during the reading and memoing phase of the data analysis process, NVivo 10 ® was utilized to manage the collected participant responses. Data was placed in spreadsheets and then separated into nodes based on the research question. To gain a clearer idea of how data represented the research question, Inspiration 9 ® was then utilized to gain a visual representation of the responses. Utilizing Inspiration 9 ® allowed for easier classification into themes.

**Data Analysis**

The overarching question that this phenomenological research study intends to answer is *"What are nursing educators' lived experiences in assisting nursing students to develop critical*

*thinking in the classroom at community college associate degree nursing programs in Nebraska?"*

Figure 4.2.: The Research Question Model represents how each sub question links to the central research question.

1. What teaching methods do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska utilize to develop critical thinking in nursing students in the classroom?

2. How do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe the meaning of critical thinking?

3. What attributes do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe as necessary for students to be able to critically think?

4. What challenges do nursing educators who teach in nursing programs within community college associate degree programs face when integrating critical thinking into the classroom?

5. How do nursing educators who teach in nursing programs within community college associate degree programs know that their teaching methods are effective at enhancing critical thinking in students in the classroom setting?

***Figure 4.2.*** **Research Question Model**

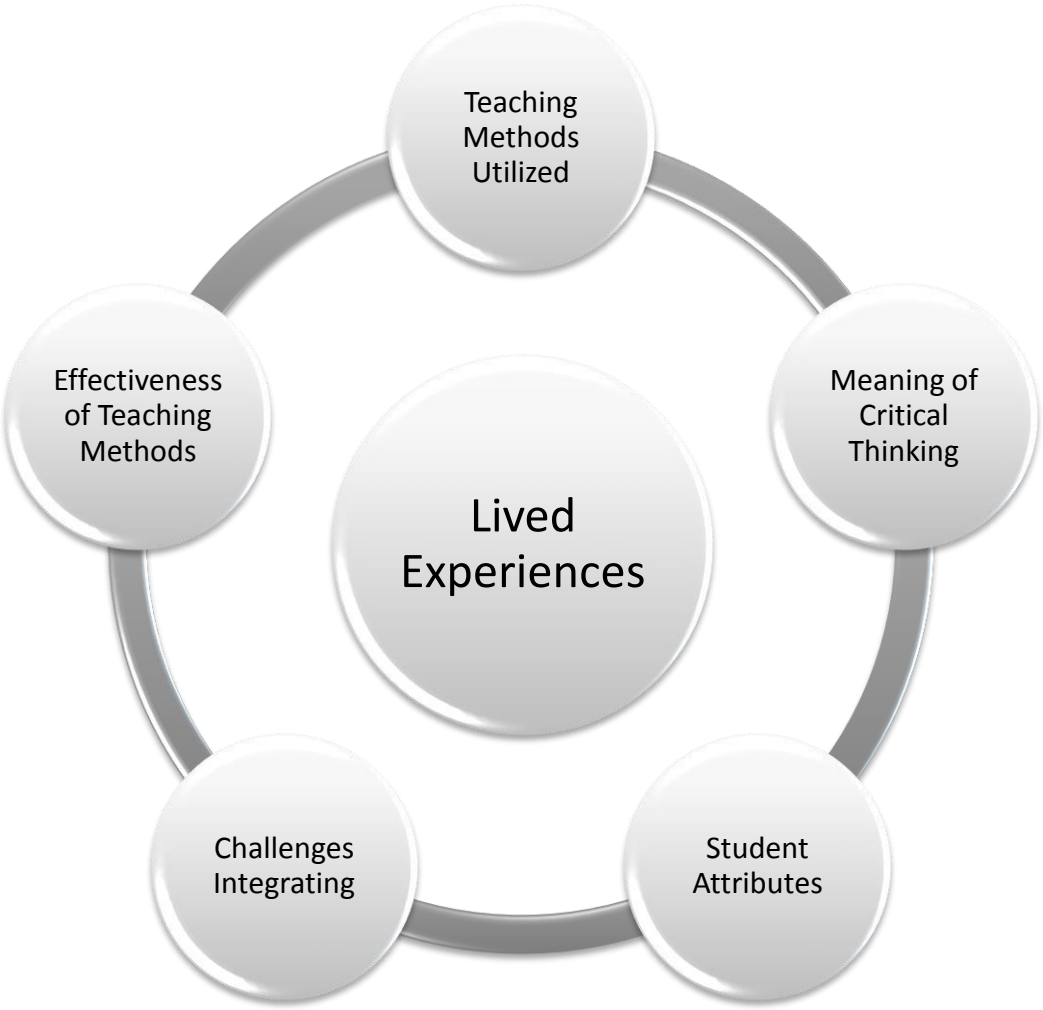


*Figure 4.2.* This figure illustrates the relationship of each sub question to the overall central research question of the "lived experience".

# Results

## Themes

### Teaching methods themes.

The sub question *"What teaching methods do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska utilize to develop critical thinking in nursing students in the classroom?"* reveals a variety of responses from the study participants. Participants were asked in an open ended online survey this question "*Within the classroom setting, what do you do to assist nursing students to develop critical thinking? Please give specific examples of how you utilize teaching methods within the classroom to develop critical thinking in nursing students".*

Data analysis of the participant responses to the open-ended survey question revealed five themes regarding the teaching methods. These themes include *solo activities, group activities, questioning, written work, and feedback*. In Figure 4.3. Teaching Methods Themes, represents the themes and the key participant responses that were revealed.

***Figure 4.3.*** **Teaching Methods Themes**

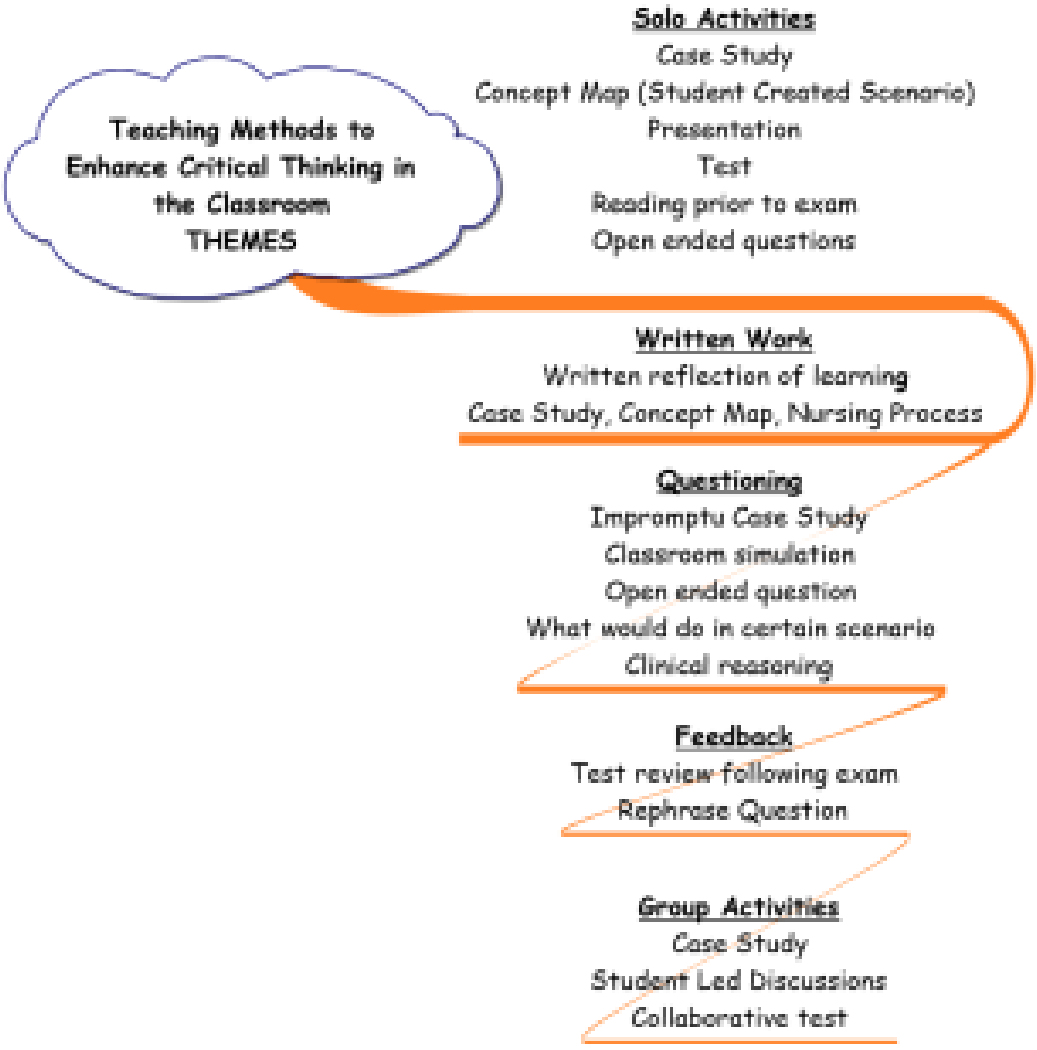


*Figure 4.3* This figure represents the themes and participant responses related to teaching methods to enhance critical thinking in the classroom.

***Group activities.***

Themes regarding teaching methods were developed by reading and rereading the responses from the participants to identify similarities regarding terms expressed in the participants' written responses. *Group activities* is one of the themes that became apparent based on several participants responses that utilized such words as "group activities," "pairs of students," "collaboration during testing," "students create a scenario, and then present as a group," and "work on them in small groups." Reference was made to performing "case studies and concepts maps, as well as discussions in the classroom." Several notations were made that the case studies could be completed in groups, or as a solo activity. Solo activities will be explored more in depth in future themes. Group work can also be conducted by "working through impromptu case studies relating to the topic of the day and have them work through the process with the whole group." Participant responses also reflects having "student led discussions and collaboration during testing" which are group activities.

***Feedback.***

Participant survey responses reflect the theme of *feedback*. There is one instance where a participant response reflects that students were permitted to have "test review following testing." Another response that correlated with the theme feedback was

> I rarely answer their question. If they ask a question, I just rephrase the question and assist them in figuring out the answer. I will continue to walk them through their thinking process and I am very honest with them when they are not thinking correctly.

### *Questioning.*

*Questioning* is another theme that manifests from the data analysis process. Responses such as "I provide questions that require students to set priorities as to which patient they would assess first or given a specific patient what type of assessment would be done first," "incorporating the scenario into the use of diagnosis, nursing process, labs, treatments, medications and come up with a reason to what and why this is occurring in the patient" and "ask them to give me a nursing process and set up a scenario." Other responses that correlate with the theme of *questioning* are "ask them to form a plan of care or anticipate questions," "application style questions," "open ended questions," and "give me an example of what they would do in a certain scenario."

### *Written work.*

The theme of *written work* is evident with multiple responses from participants in the form of various assignments. The use of "case studies and concept maps" was identified from several participants. Completion of "written reflection about what they learned" and "written reflections are vital to cement these active learning strategies" is identified. Another written activity identified is "incorporating the scenario into the use of diagnosis, nursing process, labs treatments, medications," and "working through impromptu case studies relating to the topic of the day."

### *Solo activities.*

Many of the teaching strategies may be completed by individual students or by a group of students. *Solo activities* may include "case study," "concept maps," "student created scenario," "presentation," "test," and "read assignments prior to class." Many of the participants did not

indicate that these teaching strategies were solo or group activities. Some participant responses were very clear on group activities, and did not bring forth a lot of insight on the use of solo activities.

**Effectiveness of teaching methods themes**.

Data collection occurred regarding the sub question *"How do nursing educators who teach in nursing programs within community college associate degree programs know that their teaching methods are effective at enhancing critical thinking in students in the classroom setting?"* by asking an open ended survey question. The survey question that was asked was "*In the classroom setting, how do you as an educator know that the teaching methods used are enhancing the students' critical thinking? Please list specific examples.***"**

Data analysis of the participant responses of the effectiveness of teaching methods reveals four themes. These themes include *assessment results, formulate statements of knowledge, application/correlation,* and *outliers.* Below in Figure 4.4., Effectiveness of Teaching Methods Themes, represents the themes and the key participant responses were revealed.

***Figure 4.4.*** **Effectiveness of Teaching Methods Theme**

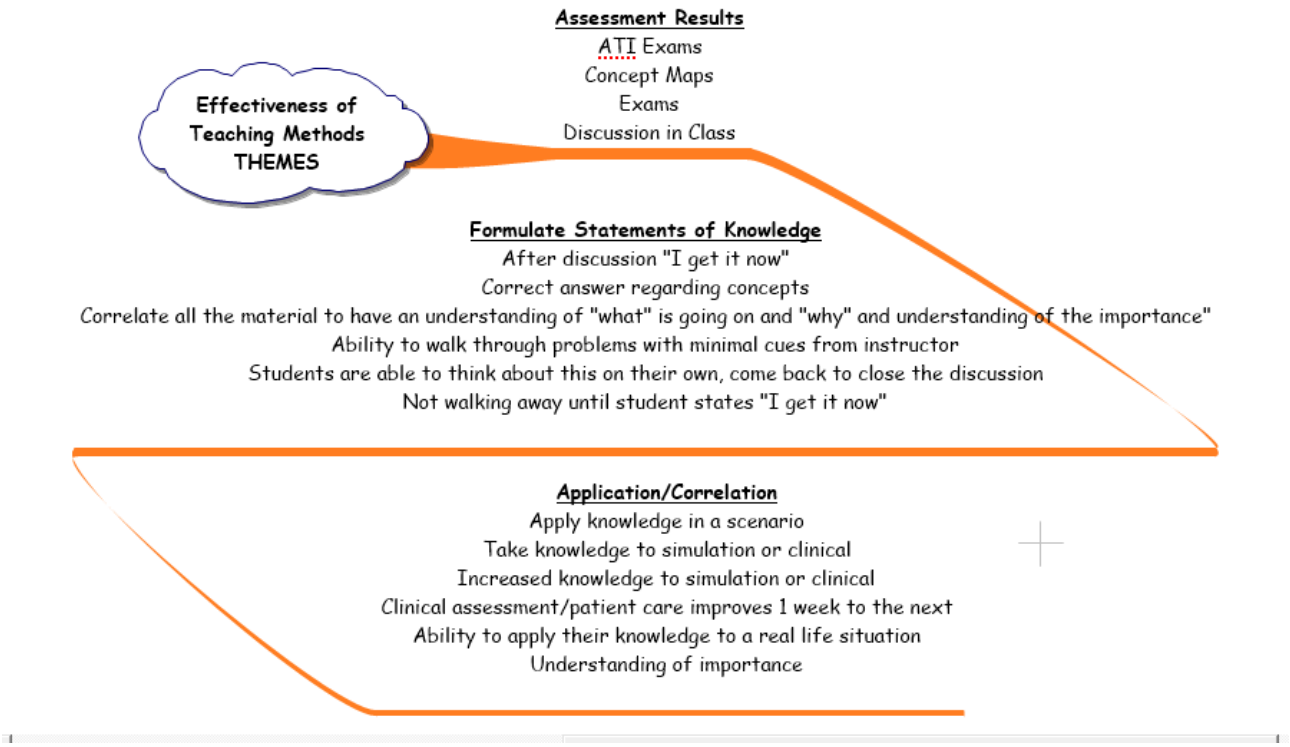


*Figure 4.4.* This figure represents the themes and participant responses related to effectiveness of teaching methods.

***Assessment results.***

The theme of *assessment results* is revealed during the data analysis process. A participant response stated "you hope that you see it on ATI as well as on exams," while another responded by also stating "exam grades" as being an indicator of the effectiveness of teaching methods to enhance critical thinking. Other assessment results that were mentioned were the student being able to "show you through concept maps," and "through discussion in the classroom setting."

***Formulate statements of knowledge.***

The theme *formulate statements of knowledge* developed from participant responses regarding student acknowledgement of what was learned. Statements such as

> After discussion, they say I get it now. I won't walk away from a student until they tell me this statement. It does no good to leave them with the question still. I may encourage them to think about it on their own for a bit, but then they have to come back to me to close the discussion.

Other statements that correlate with this theme are "answer all of the questions correctly with adequate rationale as to why they gave they answers that they did," "ability to walk through problems with minimal cues from the instructor," and "trying to correlate all the material to have an understanding of 'what' is going on and 'why' and understanding the importance.

***Application/correlation.***

The theme *application/correlation* is formulated based on several statements that utilize these key terms. Statements such as "apply knowledge in a scenario," " connect theory to practice," "correlate all the material to have an understanding of 'what' is going on and being able to 'take' that knowledge and transfer it on to the simulation or clinical settings," were introduced by the participants in the study. Other statements such as "clinical assessment and patient care skills improve dramatically from one week to the next," and "ability to apply their knowledge to a real life situation."

### *Outliers.*

There are a few statements made by participants that the researcher integrated within their own theme because the information is relevant to the research question. This theme is identified as *outliers*. Based on the research within the literature review regarding the difficulty in measuring critical thinking, it is evident that these statements could not be withheld from the research results. It is apparent that the participants struggle with the ability to measure critical thinking within nursing students. One participant stated that to know the effectiveness of teaching methods is "not always able to concretely determine, you hope that you see an increase in their knowledge base to the bedside in the clinical setting. You hope that you see it on ATI as well as on exams, and also that they show you through a concept map. There is no one way to determine and it may come at different intervals for students based on them as individuals." Another participate stated knowing effectiveness of teaching methods was "Frustrating. I see their clinical assessment and patient care skills improve dramatically from one week to the next. I do not see their multiple choice test scores change much and this is very discouraging. I think it is because the test does not reflect actual learning."

### Challenges integrating critical thinking into the classroom themes.

Data collection regarding the sub question *"What challenges do nursing educators who teach in nursing programs within community college associate degree programs face when integrating critical thinking into the classroom*?" was collected by asking an open-ended question within the online survey. The question "*Please describe any challenges that you have faced when integrating critical thinking into the classroom"* was presented to research participants.

The data analysis regarding the challenges integrating critical thinking into the classroom setting generates four themes. These themes include *lack of knowledge*, *beliefs and values*, *time*, and s*tudents*. Below in Figure 4.5., Challenges to Integrating Themes, represents the themes and the key participant responses that were revealed.

***Figure 4.5.*** **Challenges to Integrating Themes**

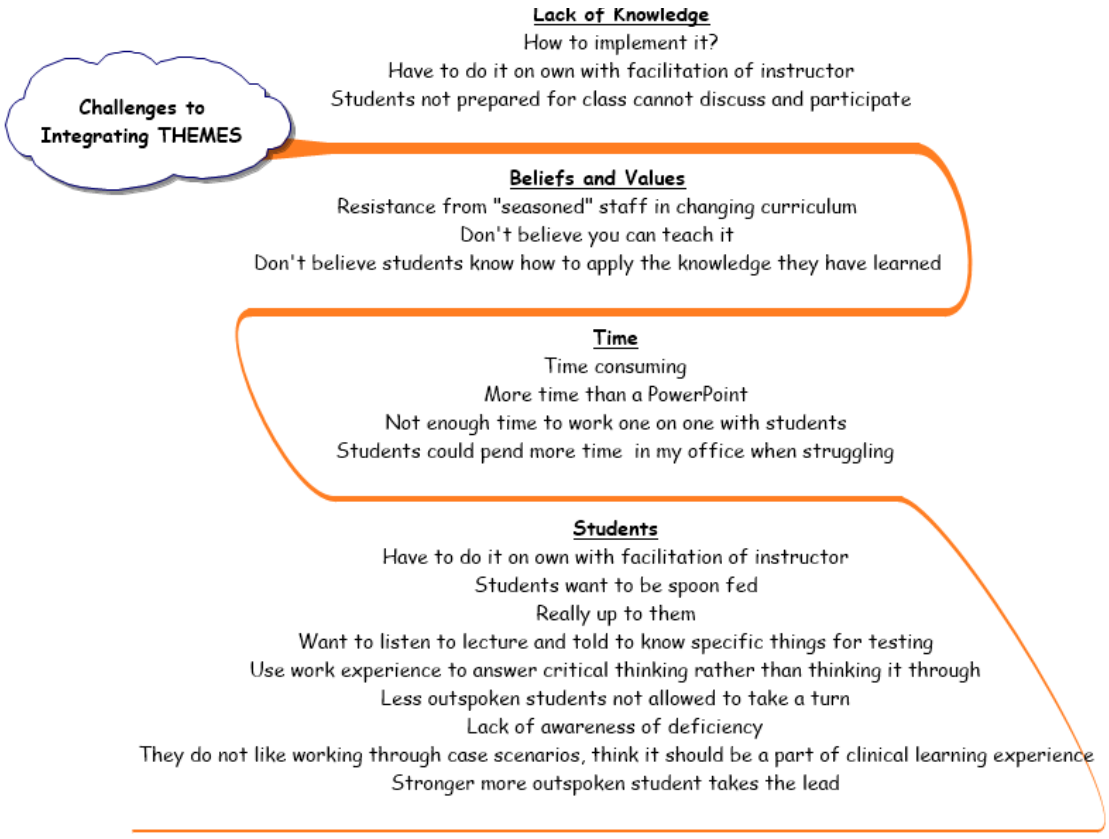


*Figure 4.5.* This figure represents the themes and participant responses related challenges integrating critical thinking into the classroom setting.

***Lack of knowledge.***

The theme *lack of knowledge* stems not only from the nursing educator lack of knowledge but the students as well. The participate responses to the survey questions clearly indicate this correlation between the students' and nursing educators' knowledge levels regarding the use of critical thinking within the classroom. The following statements support the theme of *lack of knowledge* regarding the student and nursing educator. Nursing educators lack understanding of "How to implement it" and "students not prepared for class cannot discuss and participate in the higher level learning that should take place in the classroom." Another participate stated, referring to the students role in critical thinking " I think it is a student led adventure that they have to do on their own with the facilitation of the instructor but it is really up to them."

***Beliefs and values.***

*Beliefs and values* theme reveals statements about the personal "beliefs" of the study participants. Several responses indicate that nursing educators:

> Don't believe students know how to apply the knowledge they have learned", that "a lot of students want to be "spoon fed" and listen to lecture and be told to know specific things for testing purposes. They do not like working through case scenarios they think that this should be a part of their clinical learning experience.

One participate stated that there is "lots of resistance from 'seasoned' staff in changing the curriculum", while another stated:

> "This is such a difficult topic because I don't believe that you can teach critical thinking. I think it is a student led adventure that they have to do on their own with the facilitation of the instructor but it is up to them."

Another participate stated:

> I think it is important that the students know what you expect and that you expect them to learn to be critical thinkers. I think that if this is interwoven into every assignment, they will learn the skill. I also think that students who have been taught to critically think from an early age, are more mature thinkers and critical thinking comes easy to them.

***Time.***

Statements regarding time or lack thereof are evident while reviewing the statements made in the survey. One participate noted that "Sometimes not having enough time to work one-on-one with students." All have busy lives and it would be nice if students could spend more time in my office when they are struggling with this concept." Another participant stated that "It is VERY time consuming and actually takes more time than putting together a power point presentation."

***Students.***

The final theme created from the data analysis is *students.* Some of the statements the participant statements overlap within other themes, but the researcher found it necessary to include *students* as an individual theme. In essence, the student is the most important aspect of integrating critical thinking into the classroom because nursing educators' primary role is to ensure the success

of the student. Statements by the participants such as "students want to be 'spoon fed' and listen to lecture and be told to know specific things for testing purposes" and "students not prepared for class cannot discuss and participate in higher level learning." One participant identified when the student is having a difficult time with a concept "It would be nice if the student could spend more time in my office when they are struggling with this concept." Another aspect that was mentioned regarding where the students struggle is "being out of the classroom setting for a length of time-using work experiences to answer critical thinking rather than thinking it through." Another statement regarding the student is "students not prepared for class cannot discuss and participate in the higher level learning that should take place in the classroom."

**Attributes of critical thinker themes.**

The sub question *"What attributes do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe as necessary for students to be able to critically think?"* reveals a variety of responses. Participants were asked to respond to the open-ended survey question "*What characteristics do you perceive nursing students need to possess to critically think?"* Data analysis regarding the attributes of critical thinkers generates two main themes, *skills and abilities.* Below Figure 4.6, Attributes of Critical Thinker Themes, represents the themes and the key participant responses to the survey question.

***Figure 4.6.*** **Attributes of Critical Thinker Themes**

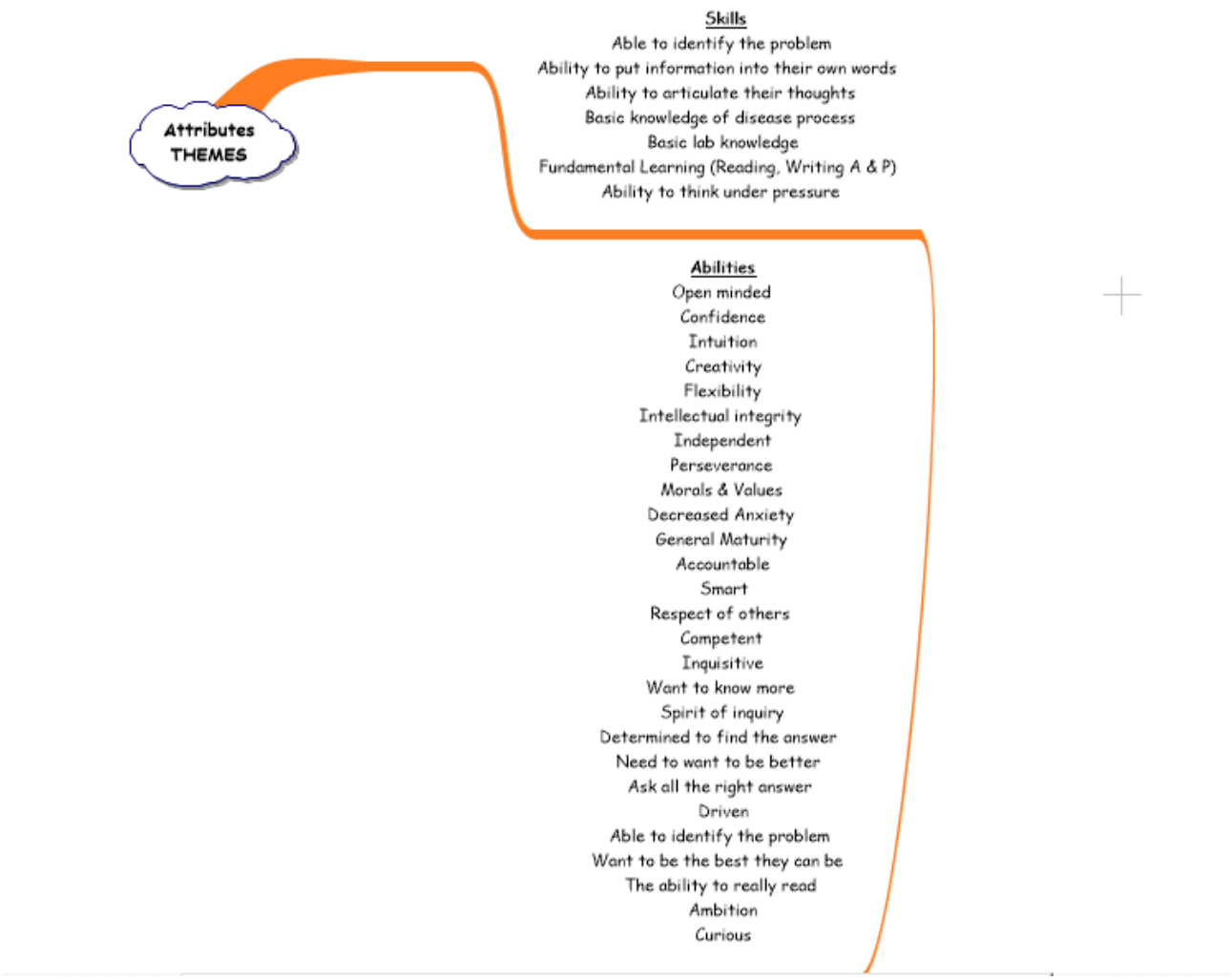


*Figure 4.6.* This figure represents the themes and participant responses related to the attributes of a critical thinker

***Skills.***

The theme *skills* is devised from the idea that these attributes can evaluated or graded in some manner. Some participant responses include that students have "the ability to apply their knowledge to a real life situation" and "able to identify problems." Others include that "they need

basic knowledge of disease processes, the ability to assess a patient, basic lab knowledge, and ambition," as well as the "ability to think under pressure," the ability to put information in their own words," and "ability to articulate their thought." One participant response indicated that some students "lack fundamental learning skills (like reading and writing ability or basic anatomy and physiology) needed to be really successful because it hinders them from acquiring the basic knowledge."

***Abilities.***

*Abilities* are characteristics or actions that participants need to possess in order to be able to critically think. Participant responses that are included within the abilities theme are "open minded," "confidence," "intuition," "intellectual integrity" and "self-motivation." Participants also expressed *abilities* necessary for students to critically think are "accountable, independent, possess morals and values and a general maturity," along with being "smart, and respecting others." Similarly participants responded by stating students "want to know more, spirit of inquiry, want to be better, want to be the best they can, ambitious, and curious." Some students can possess or be encouraged to build "intuition," develop "intellectual integrity," "perseverance" and improve their "ability to listen." Students can also learn to be "inquisitive," and want to "ask all the right questions," "find the answers," improve their "ability to really read" and "want to know more." Additionally participants interjected that students need to be "competent" and "smart".

**Meaning of critical thinking themes.**

The sub question *"How do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe the meaning of critical*

*thinking?"* is answered by posing the open-ended survey question "*Please describe what critical thinking means to you."*

When reviewing the data pertaining to the participants responding to the question of the meaning of critical thinking, three themes are identified. Repeated words throughout the survey results identified the themes of *process, application, and problem solving*. Below in Figure 4.7., Meaning of Critical Thinking Themes, is a visual representation of the themes and the key participant responses to the survey question.

***Figure 4.7.*** **Meaning of Critical Thinking Themes**

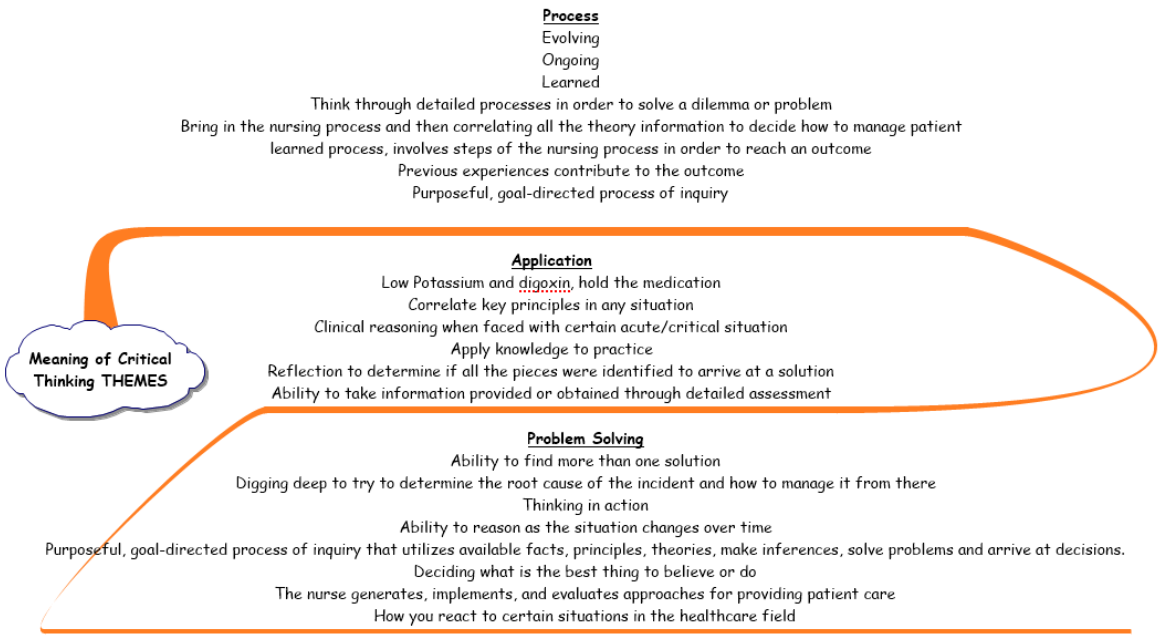


*Figure 4.7.* This figure represents the themes and participant responses related the meaning of critical thinking

***Process.***

The generation of the theme *process* is developed from several participant responses utilizing the term in their response to the survey question regarding the meaning of critical thinking. One participant stated the meaning of critical thinking as "an ongoing process," and that critical thinking "is an evolving process even for us as educators." Participants stated that critical thinking is "a purposeful, goal-directed process of inquiry," while another responded by stating that "critical thinking is a learned process." Participant responses also included elements of the nursing process as a part of the meaning of critical thinking. For example, critical thinking "involves steps of the

nursing process in order to reach an outcome" and "it is how you react to certain situations in the healthcare field." Another participant responded by stating that "each step of the nursing process involves reflection to determine if all the pieces were identified to arrive at a solution."

### *Application.*

*Application* is an obvious theme based on the multiple participant responses that identified the term when answering the survey question regarding the meaning of critical thinking. Participant responses included "when a student can apply knowledge to practice," "how you react to certain situations in the healthcare field, bringing in the nursing process and then correlating all the theory information," as well as ""being able to connect the theory behind the practice and apply it to the patient situation." Critical thinking is "being able to connect theory behind the practice and apply it to the patient situation." Critical thinking "is thinking in action with the ability to reason as the situation changes over time." According to one participant, critical thinking is "the ability to take information provided or obtained through detailed assessment and apply the appropriate actions and think through detailed processes in order to solve a dilemma or problem."

### *Problem solving.*

The theme *problem solving* is derived from participant responses related to their perceived meaning of the concept of critical thinking. According to one participant:

> Critical thinking is the ability to find more than one solution to a problem and then deciding what the best thing to believe or do is. Critical thinking guides the nurse in generating, implementing, evaluating approaches for providing care.

A portion of another participant's explanation of the meaning of critical thinking is "bringing in the nursing process and then correlating all the theory information in order to make a decision on how to begin to manage the situation," whereas another participant's response is that "critical thinking is a purposeful, goal-directed process of inquiry that utilizes available facts, principles, theories, make inferences, solve problems or arrive at decisions." Further interpretation of the meaning from one participate stated that critical thinking is "the ability to take information provided or obtained through detailed assessment and apply the appropriate actions and think through detailed processes in order to solve a dilemma or problem." Another participant responded to the question by stating that critical thinking is "putting yourself into the 'A' game and that you are digging deep to try and determine the root cause of the incident and how to manage it from there."

**Summary of Analysis**

The data collected from participant responses to the survey were carefully scrutinized to aid in the identification of themes that represent the central and sub questions posed in this research study. The participant responses aided in identifying the "lived experiences of critical thinking with the class room setting with ADN programs at community colleges in Nebraska. Data analysis organized the responses of participants into meaningful themes and explained the patterns and themes (Creswell, 2014). The participant responses were organized categorically, reviewed repeatedly, and continually coded throughout the analysis process (Creswell). Each theme identified from participant responses was clearly illustrated utilizing a visual representation of the responses. This visual representation allows for ease of viewing and identification of the perspective themes identified within this study. A visual representation can be found below within Figure 4.8 Themes

Linked to the Lived Experience. The purpose of this figure is to show the relationship of each sub question to the primary central research question regarding the lived experience of critical thinking in the classroom.

***Figure 4.8.*** **Themes Linked to Lived Experience**

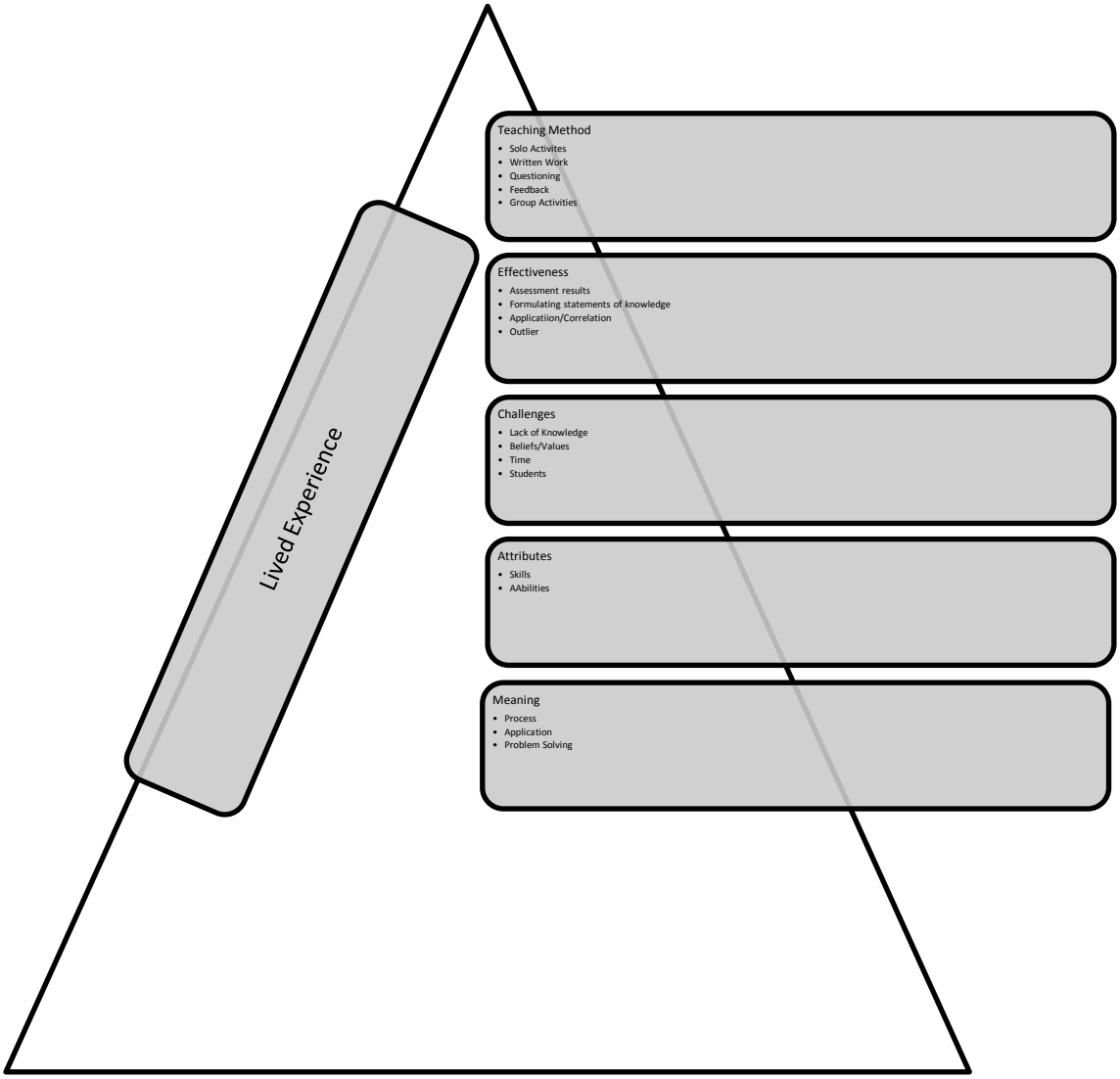


*Figure 4.8.* This figure represents the relationship of the themes to the overall lived experience.

# Chapter V

## Discussion & Summary

### Introduction

Chapter V of this dissertation illustrates the data interpretation and the correlation with each research questions. Research participant responses are compared to the operational definitions developed for the purposes of this study. Throughout the chapter there are figures that represent the data interpretation. The overall findings of the central research question *"What are nursing educators' lived experiences in assisting nursing students to develop critical thinking in the classroom at community college associate degree nursing programs in Nebraska?"* is identified and discussed within this chapter. Moreover included in this chapter is the recommendations based on findings of this study, limitations of the study, and recommendations for future research.

### Research Questions

Figure 5.1. Research Question Model is utilized within other chapters to illustrate the relationship of the research study's sub questions to the overall central research question. This figure correlates with the information presented within this chapter as a means of visualizing how each sub question is used to illustrate the "lived experience" of critical thinking within the classroom setting. Data collected from the survey are compared and triangulated with the literature findings, and the operational definitions, to aid in answering each sub question and central question.

***Figure 5.1.*** **Research Question Model**

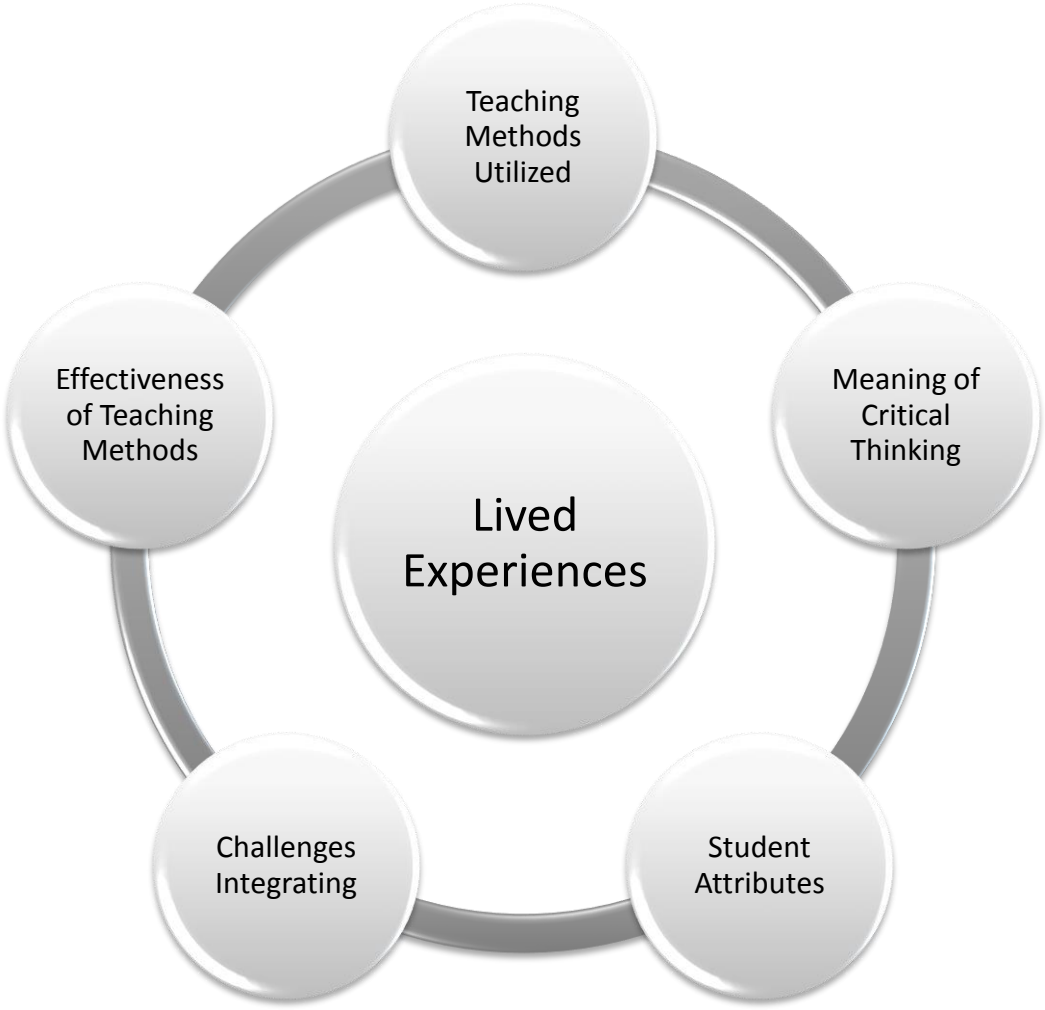


*Figure 5.1* This figure illustrates the relationship of each sub question to the overall central research question of the "lived experience"

**Teaching methods sub question.**

The sub-question *"What teaching methods do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska utilize to develop critical thinking in nursing students in the classroom?"* is compared to the literature review and operational definitions that were developed for the purposes of this research study. The data analysis identifies key themes that were devised based on participant responses to the survey. Data analysis of the participant responses to the open-ended survey question reveals five themes regarding the teaching methods, which include *solo activities, group activities, questioning, written work, and feedback.*

The operational definition for teaching methods is derived from the literature review. Within the literature, the research indicates that there is variations in the manner of teaching within the classroom setting. Teaching methods include solo activities, group activities, written work, modeling, and feedback (Twibell, Ryan, & Hermiz, 2005; Staib, 2003; Broadber & Keyser, 2000; Mumm & Kersting, 1997; Schaber & Shanedling, 2012; Mumm & Kersting, 1997; Whei, Masodi & Kipp, 2000). Solo activities may include independent research, essay exams, and presentations, where group activities included, but were not limited to, thinking aloud, debriefing, case studies, and discussion. Written work may include, but is not limited to, care plans, concept maps, and essay exams, and modeling included instructor/student interaction, coaching, and guided observation. Feedback may include, but is not limited to, instructor critique of written work, constructive advice, and peer feedback (Twibell, Ryan, & Hermiz, 2005; Staib, 2003; Broadber & Keyser, 2000; Mumm

& Kersting, 1997; Schaber & Shanedling, 2012; Mumm & Kersting, 1997; Whei, Masodi & Kipp, 2000).

Figure 5.2. Research Question Teaching Methods illustrates the relationship of the themes created from the research analysis to the literature findings. The literature review reveals modeling as a teaching method used by nursing educators within the classroom. There is not a separate heading for modeling, because the participant responses did not reveal a theme that corresponds to the findings within the literature. Figure 5.2, identifies that there is not an association to the theme *questioning* within the literature, but the researcher brings forth participant responses that correlate within the attribute's operational definition.

***Figure 5.2.*** **Research Question Teaching Methods**

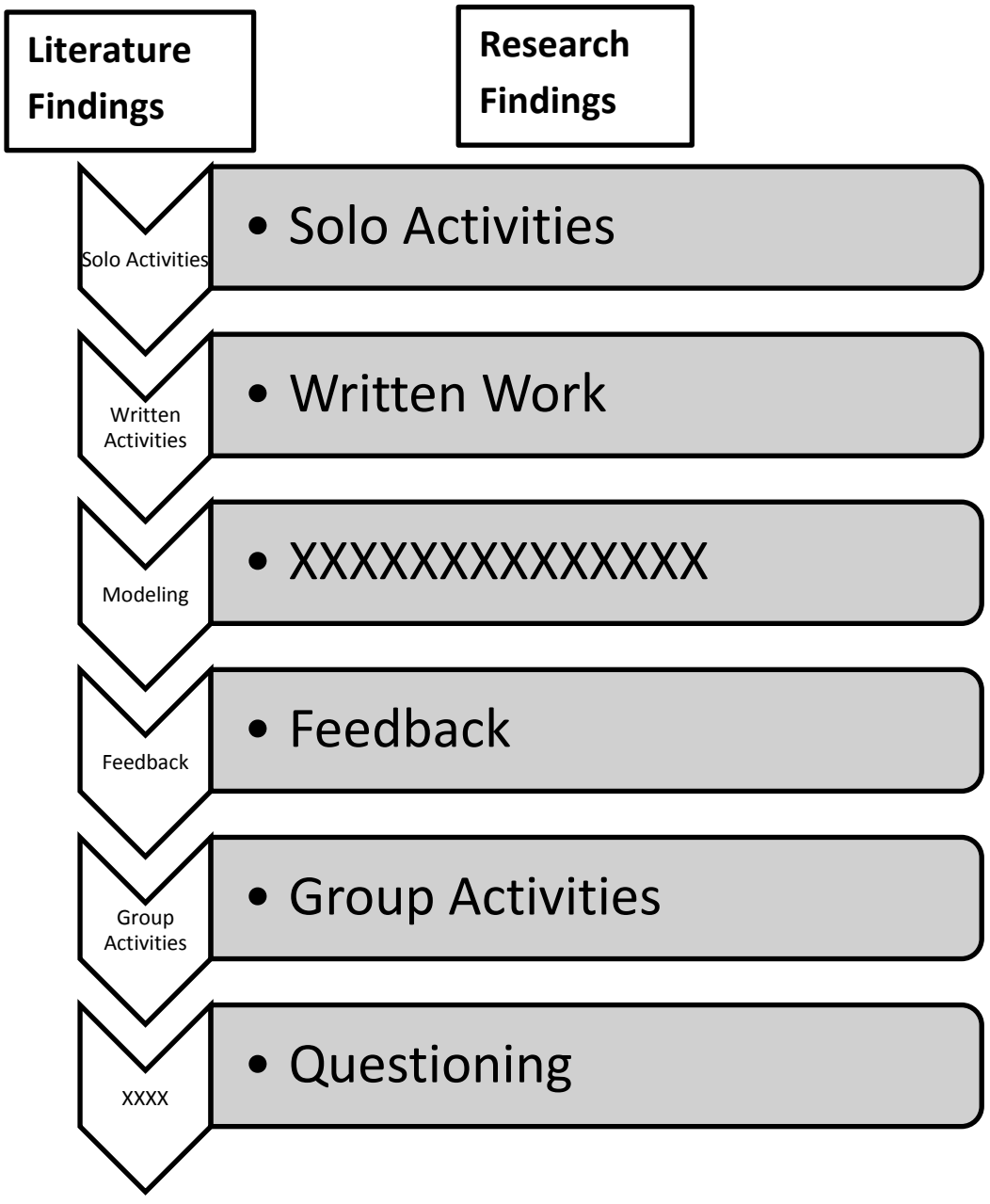


*Figure 5.2.* This model represents the literature findings compared to the research findings that were identified from participant responses. The XXXX within some of the model represent either no notated findings within the literature or no participant responses that correlated to the literature review findings.

### *Group activities.*

The responses from participants reveal the theme *group activities* which is based on words expressed like "group" activities, "pairs of students," "collaboration during testing," "students create a scenario, and then present as a group," and "work on them in small groups." The theme is compared to this study's operational definition of teaching methods. Within the literature *group activities* are expressed as "thinking aloud," "debriefing," "case studies" and "discussion." The theme *group activities* formulates from participant responses triangulated with the teaching methods identified within the literature. Figure 5.2. Research Question Teaching Methods illustrates this correlation.

### *Solo activities.*

Many teaching strategies may be completed by individual students or by a group of students. *Solo activities* theme is illustrated by participant responses that include "case study," "concept maps," "student created scenario," "presentation," "test," and "read assignments prior to class." Many of the participants did not indicate that these teaching strategies were solo or group activities. Participant responses clearly indicates group activities, but did not bring forth a lot of insight on the use of solo activities. It is assumed that many of these activities can be performed as a solo teaching method or group teaching method. The literature analysis reveals that solo activities may include independent research, essay exams, and presentations. The researcher's data analysis reveals methods that will require independent research in order to develop, such as a concept maps and student created scenarios. Depending on the need, independent research may also be necessary.

Participant responses did not mention the use of essay exams as a means of performing a solo learning activity. The use of exams is only mentioned as a means of group testing.

***Feedback.***

Participant survey responses reflect the theme of *feedback*. There was one instance where a participant response reflects that students were permitted to have "test review following testing". Another response that correlates with the theme feedback is

> I rarely answer their question. If they ask a question, I just rephrase the question and assist them in figuring out the answer. I will continue to walk them through their thinking process and I am very honest with them when they are not thinking correctly.

The literature review expresses elements of feedback as instructor critique of written work, constructive advice, and peer feedback (Twibell, Ryan, & Hermiz, 2005; Staib, 2003; Broadber & Keyser, 2000; Mumm & Kersting, 1997; Schaber & Shanedling, 2012; Mumm & Kersting, 1997; Whei, Masodi, & Kipp, 2000). The review of the literature indicates that feedback was not limited to only these three teaching methods (Twibell, Ryan, & Hermiz, 2005; Staib, 2003; Broadber & Keyser, 2000; Mumm & Kersting, 1997; Schaber & Shanedling, 2012; Mumm & Kersting, 1997; Whei, Masodi, & Kipp, 2000). The data analyzed from the research participants reveals that there were not any views expressed regarding feedback in the form of having the instructor critique the written work or peer feedback. There was a response that brought forth an element of constructive advice, by the instructor "rephrasing the question and assist them in figuring out the answer."

***Questioning.***

The theme of *questioning* manifests from the data analysis process. Responses such as "I provide questions that require students to set priorities as to which patient they would assess first or given a specific patient what type of assessment would be done first," "incorporating the scenario into the use of diagnosis, nursing process, labs, treatments, medications and come up with a reason to what and why this is occurring in the patient" and "ask them to give me a nursing process and set up a scenario." Other responses that correlate with the theme of *questioning* are "ask them to form a plan of care or anticipate questions," "application style questions," "open ended questions," and "give me an example of what they would do in a certain scenario."

When reviewing the operational definition in an effort to triangulate the participant literature indicated that students writing about clinical experiences and conferring over written work provides opportunity for students to practice thinking steps, and develop questioning skills necessary for probing their thought processes (Mumm & Kersting, 1997; Whei, Masodi & Kipp, 2000). Other evidence in the literature manifested from Nickitas (2012) who explored and introduced an awareness of ways to utilize questioning within nursing education. Nickitas emphasized that employing questioning as a teaching method assists in the promotion of ethical and clinical reasoning that aids in improving patient care and safety (Nickitas, 2012).

Questioning tends to link more so with Paul and Elder's (1999; 2008) intellectual standards and elements of thought. The intellectual standards include examining situations with clarity, accuracy, precision, relevance, depth, breadth, logic, and fairness (Paul & Elder, 1999; 2008). The elements of thought include identifying the purpose, question at issue, information, interpretation

and inferences, assumptions, implications and consequences, and point of view (Paul & Elder). Utilizing *questioning* methods as expressed by the research participants may initiate conversations with the students which can lead to them examining situations for clarify, accuracy, and along with other intellectual standards. Students may also be able to identify the purpose, question issues, and form clear explanation of patient scenarios based on Paul and Elders framework.

***Written work.***

The theme of *written work* is evident with multiple responses from participants in the form of various assignments. The use of "case studies and concept maps" is identified from several participants. Completion of "written reflection about what they learned" and "written reflections are vital to cement these active learning strategies" is identified. Another written activity identified is "incorporating the scenario into the use of diagnosis, nursing process, labs treatments, and medications," and "working through impromptu case studies relating to the topic of the day." The literature review led to the development of the operational definition that cited written work may include care plans, concept maps, and essay exams. The use of case studies and concept maps parallels with what was revealed within the literature. Utilizing case studies and concept maps can be employed to "incorporate scenarios by using the nursing process" or "relating to the topic of the day." The operational definition devised did not mention the use of reflection as a teaching method; nevertheless, the research participants utilized the term reflection several times. Reflection is needed to bolster the knowledge gained through the active teaching method and illustrate what the students have learned.

**Meaning sub question.**

The sub-question *"How do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe the meaning of critical thinking?"* was explored by asking nursing educators their perceived meaning. The data collected was then analyzed to identify similarities, and then themes were developed. The themes developed regarding the meaning of critical thinking include that critical thinking is an evolving *process* requiring *application, and problem solving.* Figure 5. 3. Research Meaning Sub question is a visual representation of the literature review in comparison to the data collected within this research study.

Critical thinking according to Facione (1990, p. 2) is defined as " a nonlinear process of purposeful, self-regulatory judgment that gives reasoned consideration of evidence, contexts, conceptualizations, methods, and criteria." Critical thinking is a broad topic, used to explain the way individuals interpret, analyze, and synthesize knowledge, and it involves the skills of interpretation, analysis, evaluation, inference, explanation, and self- regulation necessary to become effective critical thinkers (Facione, 1990; 2011). Participants were asked to disclose their meaning of critical thinking in the classroom setting. The responses were then examined to identify similarities and differences.

***Figure 5.3.*** **Research Question Meaning**

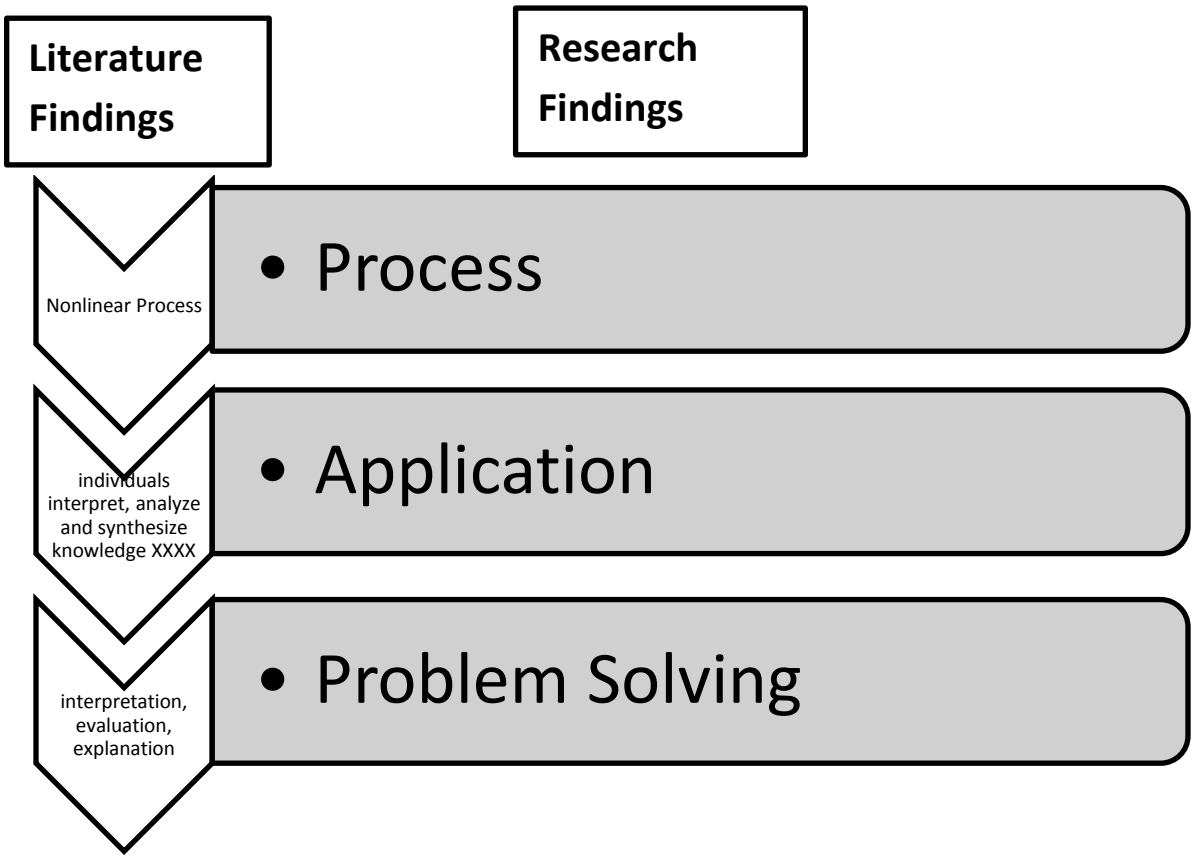


*Figure 5.3.* This figure represents the literature findings compared to the research findings that were identified from participant responses. The XXXX represent a lack of correlation regarding application in the operational definition. Detailed explanation is found below.

***Process.***

Participant responses express the word *process* several times when identifying their meaning of critical thinking. Stating that critical thinking is "an ongoing process", "evolving process", "purposeful, goal directed process", and a "learned process." Participate responses also indicate

that the process that all nurses are taught in school, "the nursing process," is crucial to illustrate the meaning of critical thinking. These responses correlate to Facione's (1990) definition and the operational definition utilized within this study that critical thinking is a "nonlinear process." The other themes will aid in identifying the other aspects of the meaning of critical thinking.

***Application.***

As data was analyzed, evidence of *application* as a theme related to the meaning of critical thinking became evident. Responses identify that students need to "apply knowledge to practice, connect the theory behind the practice and apply it to the patient situation." It is the "ability to reason as the situation changes over time," and "the ability to take information provided or obtained through detailed assessment and apply the appropriate actions and think through detailed processes in order to solve a dilemma or problem." Facione's portion of his definition that most corresponds to the theme *application* is that critical thinking is "the way individuals interpret, analyze, and synthesize knowledge" (1990, p 2). When reviewing the definition, there is very little that really points to the actual application of the information. The researcher's interpretation of the definition identifies that individuals interpret, analyze, and synthesize the information, but how are they applying their knowledge to various aspects of nursing care? This aspect of the definition seems to be deficient in how to actually apply the concept of critical thinking.

***Problem solving.***

The theme *problem solving* manifests from participant responses that relate to their perceived meaning of the concept of critical thinking. Aspects of the responses that link to the theme *problem solving* include "find more than one solution to a problem," "make a decision on

how to manage the situation," "process of inquiry that utilizes available facts, principles, theories, make inferences, solve problems or arrive at decisions." Facione's definition of critical thinking includes necessary skills that individuals must possess in order to critically think. These skills include "interpretation, analysis, evaluation, inference, explanation, and self- regulation are necessary to become effective critical thinkers" (Facione, 1990; 2011). These skills are necessary to solve problems. One must be able to interpret, analyze and evaluate situations in order to solve a problem, and then they must infer as to the possible explanation for what is going on in any given situation. Once they have completed these aspects of critical thinking, they will be able to problem solve. These skills must be developed within the individuals in order to assist them to become more effective problems solvers. The researcher's interpretation of what is evident in the research and participant responses regarding their interpretation of the meaning of critical thinking illustrates an understanding that critical thinking encompasses the aspect of *problem solving.*

**Attributes sub question.**

The sub question "*What attributes do nursing educators who teach in nursing programs within community college associate degree programs in Nebraska describe as necessary for students to be able to critically think?"* was posed within an online survey that was sent out to participating community colleges. Participant responses were obtained, analyzed and then the information was disseminated into themes. The operational definitions were then compared to the participant responses to examine similarities and differences between nursing educator responses and literature reviewed. The operational definition includes various attributes that describe individuals that are able to critically think. These attributes include that they "need to possess the

skills of interpretation, analysis, evaluation, inference, explanation, and self- regulation (Facione, 2011). Subsequently, individuals should be able to apply Paul and Elder's (2008) intellectual standards which include clarity, accuracy, precision, relevance, depth, breadth, logic, and fairness along with the elements of thought. The elements of thought illustrate how one thinks and reasons. All reasoning has a purpose, an issue or question to figure out, assumptions to clarify, and multiple points of view to be evaluated (Paul & Elder). The literature also unearthed that critical thinkers need to possess certain intellectual traits, which include humility, courage, empathy, autonomy, integrity, perseverance, confidence, and fair-mindedness.

***Figure 5.4.*** **Research Question Attributes**

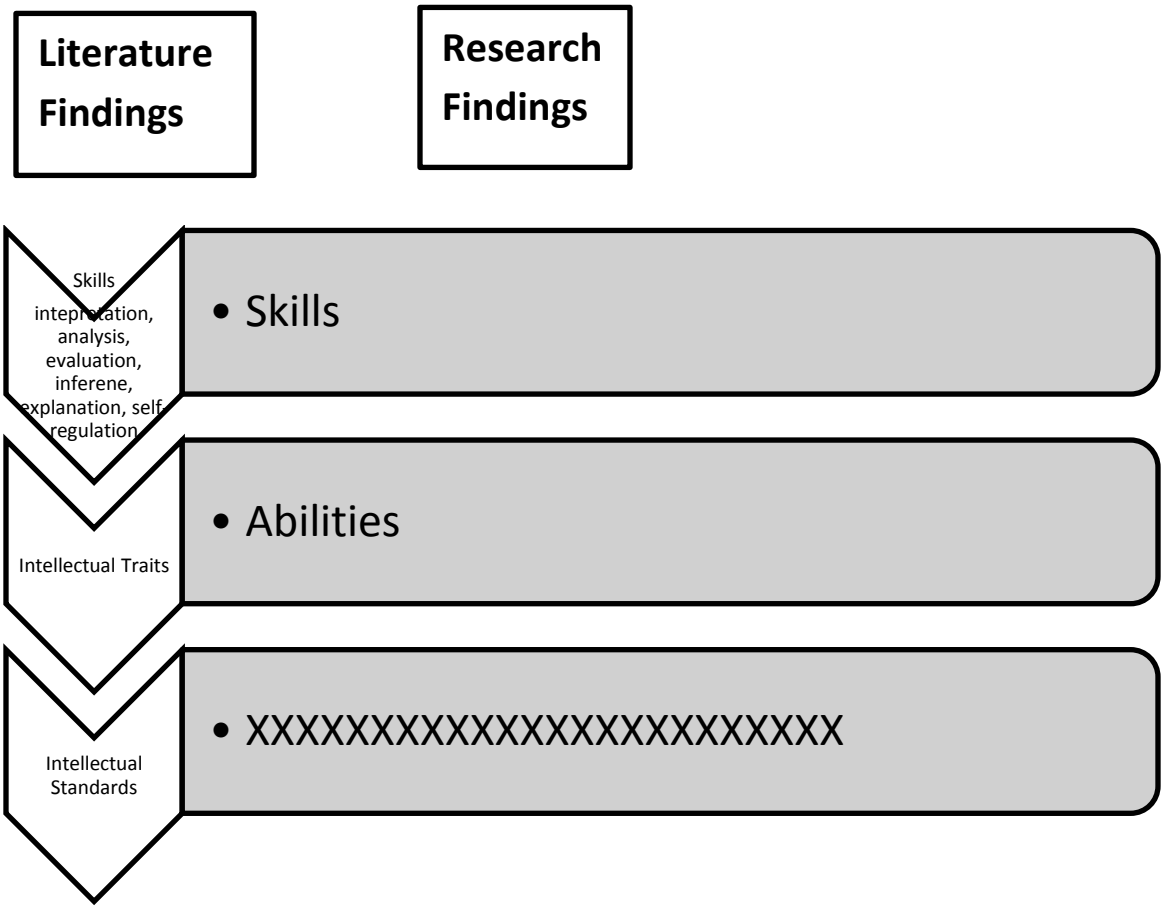


*Figure 5.4* This model represents the literature findings compared to the research findings that were identified from participant responses. The XXXX within some of the model represent either no notated findings within the literature or no participant responses that correlated to the literature review findings. The variations of findings will be explained within the text of this dissertation.

***Skills.***

The theme *skills* is developed from the idea that these attributes can be evaluated or graded in some manner. Skills within the literature include the aspects of interpretation, analysis, evaluation, inference, explanation and self-regulation (Facione, 1990; 2011). Figure 5.4 Research Question Attributes illustrates the relationship between the literature findings and the participant response findings within the research study.

When evaluating the participant responses, the theme *skills* is developed based on the ability to measure or grade the student. Each participant response relates to this theme because it could be evaluated by utilizing some form of assessment methodology. The participant responses "the ability to apply their knowledge to real life situations," "basic knowledge of disease processes, the ability to assess a patient, basic lab knowledge," "the ability to put information in their own words," and ability to articulate their thought," could be evaluated first by introducing material utilizing various teaching methods and then having the student implement the *skills* within in the classroom, by developing a nursing process or completing a case study.

*Skills* introduced by a participant is the need for basic knowledge, such as "fundamental learning skills (like reading and writing ability or basic anatomy and physiology) needed to be really successful because it hinders them from acquiring the basic knowledge." Without these fundamental learning skills, students may find it difficult to develop the necessary abilities to critically think and perform as a safe nurse. Consequently, if students are presenting to nursing school without fundamentals learning skills, what role does the nursing educator play in assisting these students to further develop these skills during their nursing education courses?

After examining the responses from the participants and the literature, it is evident that even though the participants did not use the exact words from the literature, they do have an understanding of the attributes of a critical thinker. The meaning of interpretation is "to comprehend and express meaning or significance of a wide variety of experiences" (Facione, 2011, p. 5). The researcher relates this explanation to the participant response "the ability to put information in their own words, and articulate their own thoughts." Within the participate responses Facione's skills (2011) are also evident within analysis, "identifying the intended and actual relationship, express belief, and judgements as well as evaluation, "to assess the credibility of statements or representations (Facione, 2011, p. 6). Based on participant responses it is clear that the skills of inference and explanation are also evident within the text of their responses. Inference means to "identify and secure elements needed to draw reasonable conclusion", and explanation means to "be able to present a cogent and coherent way the results of ones reasoning "(Facione, 2011, p. 6).

Facione's (2011) skill of self-regulation was not evident within the participant responses regarding the attributes of a critical thinker. The responses lacked any information regarding self-regulation which is the person's ability "to self-consciously monitor one's cognitive activities" (Facione, 2011, p. 7). After reviewing through other responses, there is one participant response that was answered under the sub-question regarding challenges. This participant stated that "a lot of the students want to be 'spoon fed' and listen to lecture and be told to know specific things for testing purposes. They do not like working through case scenarios they think that this should be a part of their clinical learning experiences." Within the literature review there is a corresponding view by Beistle and Palmer (2014) that indicates many students were hesitant to engage in learning

activities, and others just wanted to be 'spoon fed.' Self-regulation is an important part of being able to develop critical thinking. If a student is not aware of their own "cognitive activities" how will they identify where they are lacking in their abilities to be a safe nurse?

***Abilities.***

When developing the themes for attributes, it is evident that each student presents with various *abilities*. Several participant responses coincide with the operational definitions that were developed for the purposes of this study. Paul & Elder (2008) identified certain intellectual traits that individuals should possess in order to be effective at critical thinking. These include humility, courage, empathy, autonomy, integrity, perseverance, confidence, and fair-mindedness. The participant responses include "open minded," "confidence," "intuition," "intellectual integrity," and "self-motivation." Further responses include students being "accountable, independent, possess morals and values and a general maturity," along with being "smart, and respecting others."

Paul and Elders (2008) intellectual standards clarity, accuracy, precision, relevance, depth, breadth, logic, and fairness along and the elements of thought were not evident within the context of the participant responses. The intellectual standards allow students to think from various perspectives and strive for an understanding of particular concepts. These standards help the student to initiate questioning that will enable them to understand concepts with more clarity and opportunity for application.

Participants were asked a question regarding the teaching methods utilized to enhance critical thinking in the classroom. The teaching method of questioning became an apparent method utilized by the participants, but was not an evident method identified within the literature review.

Either the use of intellectual standards should have been placed within the operational definition for teaching methods and their effectiveness, or there is confusion with questioning being a teaching method. The ability to question may need to be developed, or constructed within the nursing students. Not every student possesses this attribute and may need to be taught to question by introducing the student to various teaching methods. Nevertheless, questioning could be placed in the teaching method category or the attributes category.

**Challenges sub question.**

The sub question "*What challenges do nursing educators who teach in nursing programs within community college associate degree programs face when integrating critical thinking into the classroom?"* is introduced by asking open-ended questions. Participant responses were obtained, analyzed and then the information was separated into themes. A comparison of the operational definitions devised from the literature and the participant responses is illustrated in Figure 5.5. Research Question Challenges. Further explanation of the results and comparisons are included in the subsequent paragraphs.

***Figure 5.5.*** **Research Question Challenges**

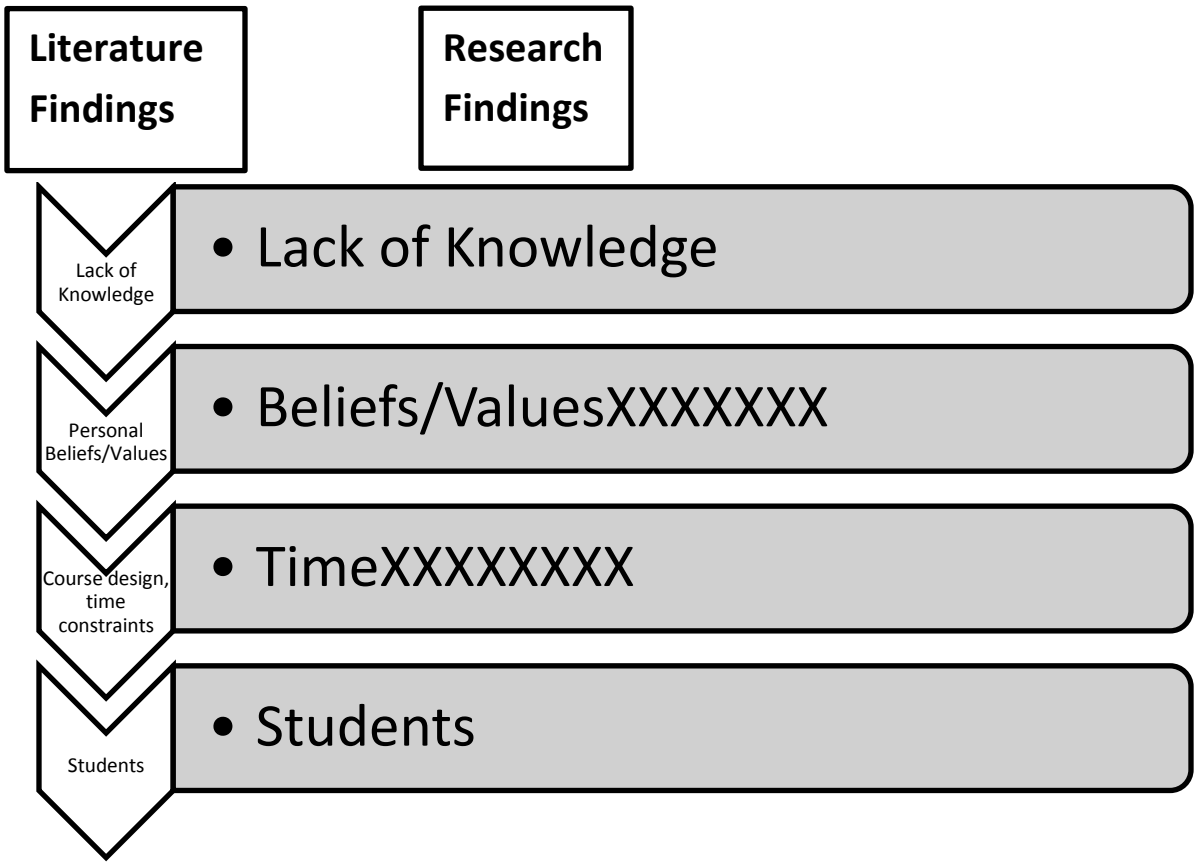


*Figure 5.5.* This figure represents the literature findings compared to the research findings that were identified from participant responses. The XXXX within some of the figure represent either no notated findings within the literature or no participant responses that correlated to the literature review findings. The variations will be explained with the text of the dissertation.

***Lack of knowledge.***

There was a definite correlation with the participant responses and the information cited within the literature regarding *lack of knowledge***.** The operational definition identifies that there is a difficulty integrating critical thinking within the classroom in part due to the educator's lack of knowledge regarding theory and acquisition of critical thinking skills and attitudes (Schaber & Shanedling, 2012). Within the context of the research participant's responses, the *lack of knowledge* was not only apparent with the nursing educators, but with the students by statements that included not knowing "how to implement it" and "students not prepared for class cannot discuss and participate in the higher level learning that should take place in the classroom," whereas another participate referred to critical thinking as " a student led adventure that they have to do on their own with the facilitation of the instructor but it is really up to them."

In the literature it is identified by Schaber and Schanedling (2012) that educators lack the knowledge regarding acquisition of critical thinking and attitudes. There is a definite deficit in a nursing educator's knowledge base if they think that all students come with the skills and knowledge to be effective at critical thinkers. Therefore, if students lack the knowledge and nursing educators lack the knowledge to teach students to critically think, how one can ensure that students are completing nursing school as safe entry level nurses?

***Beliefs and values.***

The operational definition expressed that nursing educator's personal beliefs and values are a potential challenge with integrating critical thinking into the classroom (Dickerson, 2005). The operational definition utilized for the purposes of this study did not exhibit a lot of detail as to the

meaning of beliefs and values. The participant responses illustrate more depth by expressing statements such as "don't believe students know how to apply the knowledge," believing that "a lot of students want to be 'spoon fed' and listen to lecture and be told to know specific things for testing purpose." Other responses insinuate that there is "lots of resistance from 'seasoned' staff in changing the curriculum," and that critical thinking is "such a difficult topic because I don't believe that you can teach critical thinking." Findings also indicate that it is "important that the students know what you expect and that you expect them to learn to be critical thinkers. I think that if this is interwoven into every assignment, they will learn the skill."

***Time.***

The operational definition identifies that nursing courses may lack distinct objectives and poor course design which may be a challenge for nursing educators (Schaber & Shanedling, 2012). Other factors that are a challenge for nursing educators are time constraints and the large amounts of content within nursing theory courses (Schaber & Shanedling). The operational definition that pertains to time triangulates somewhat with the participant response. Mostly this relationship is seen when looking at the time-consuming aspect of working one on one with students and how time-consuming integrating critical thinking in the classroom is. Participants responded by stating "sometimes not having enough time to work one-on-one with students" and that critical thinking "is VERY time consuming and actually takes more time than putting together a power point presentation." The research participants had no responses that correlated to the operational definition in relation to course design, distinctive objectives, and large amounts of content to teach.

***Students.***

The operational definition coinciding with the theme *student* included that they need to possess a motivation and readiness and willingness to learn. Challenges that include personality traits, cultural competency and community background may also illicit challenges when integrating critical thinking into the classroom (Ennis, 2013; Broadber & James, 2000). The participant responses illustrate that at times a student's motivation to learn and personality traits can affect their ability to critically think. At times students may "want to be 'spoon fed' and listen to lecture and be told to know specific things for testing purposes" and students may not " prepared for class cannot discuss and participate in higher level learning." Their community background or personality traits may also affect their ability to learn. Students may not have time to spend developing the critical thinking abilities due to personal or family responsibilities. An example of this is "It would be nice if the student could spend more time in my office when they are struggling with this concept." A student's community and work background may affect their abilities to learn, study, and participate in class. An example of this was introduced by a response from a participant as "being out of the classroom setting for a length of time-using work experiences to answer critical thinking rather than thinking it through" and "students not prepared for class cannot discuss and participate in the higher level learning that should take place in the classroom."

**Effectiveness sub-question.**

The sub question "*How do nursing educators who teach in nursing programs within community college associate degree programs know that their teaching methods are effective at enhancing critical thinking in students in the classroom setting?"* was addressed by proposing a

similar question on an online survey. The analysis of the responses aids in the development of four themes, *assessment results, formulate statements of knowledge, application/correlation, and outliers*. Figure 5.6. Research Question Effectiveness summarizes the relationship the research findings have to what is relevant within the literature. Further explanation of this relationship is explained in the subsequent text of this dissertation.

***Figure 5.6.*** **Research Question Effectiveness**

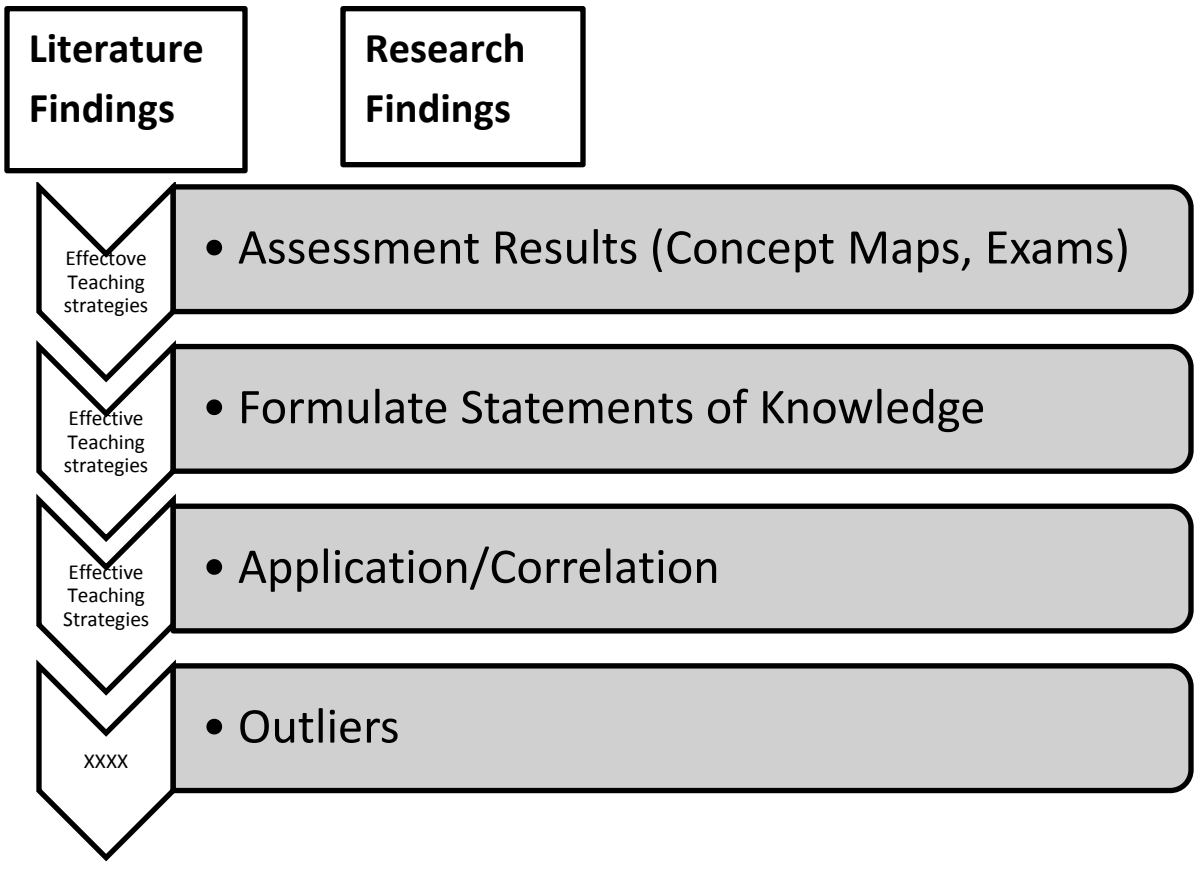


*Figure 5.6.* This model represents the literature findings compared to the research findings that were identified from participant responses. The XXXX within some of the model represent either no notated findings within the literature or no participant responses that correlated to the literature review findings. The variations is explained with the text of the dissertation.

***Assessment results.***

The operational definition developed from the literature reveals that having effective teaching strategies or teaching methods is essential at enhancing critical thinking in nursing students. Effective teaching methods leads the nurse to analyze assumptions, formulate statements of knowledge, examine potential fallibility of statements, and use deductive and inductive reasoning, along with recognizing assumptions, interpreting arguments, and connecting theory to practice. (Dickerson, 2005; Walsh & Seldomridge, 2006). The participant responses express a means to gauge effectiveness of teaching methods to improve critical thinking, and correlate with the theme *assessment results.* Responses include results such as "you hope that you see it on ATI as well on exams," and "exam grades." Other ways, according to the participant responses, was that knowledge of effectiveness of teaching strategies is "through concept maps" and "through discussion in the classroom." The use of concept maps and discussion within the classroom are the only teaching methods that were introduced by the participant responses.

***Formulate statements of knowledge.***

The literature again reveals that the use of effective teaching strategies teaches the nurse to be able to analyze assumptions and formulate statements of knowledge (Dickerson, 2005; Walsh & Seldomridge, 2006). The *formulate statements of knowledge* theme was developed based on participant responses. There is an apparent relationship identified with the operational definition and the responses from participants. *Formulate statements of knowledge* is evident from participant responses such as "After discussions, they say "I get it now," and "answer all of the questions

correctly with adequate rationale." Another response incudes the "ability to walk through problems with minimal cues from the instructor."

***Application/correlation.***

When teaching strategies are utilized effectively, nursing students will be able to reduce knowledge gaps, improve conceptualization, judge information critically, and problem solve more effectively (Magnussen, Ishida, & Itano 2000). As a result, the students will then begin to "put it all together" or "make a whole from the parts of a situation" (Twibell, Ryan & Hermiz 2005). The elements of reducing the knowledge gaps, improving conceptualization, putting it all together relate well to the students ability to apply and correlate the knowledge they have gained. Statements such as "apply knowledge in a scenario", "connect theory to practice", "correlate all the material to have an understanding of 'what' is going on" and being able to "take that knowledge and transfer it on to the simulation or clinical settings" triangulate with the operational definition that relate to effectiveness of teaching strategies.

***Outliers.***

The definition of critical thinking within nursing education is broad and difficult to define (Brunt, 2008; Riddell, 2007; Bissel & Lemons, 2006; Raterink, 2008; Tajvidi, Ghiyasvandian & Salsali, 2014). As a consequence, nursing educators may find that the inconsistency of the definition makes it difficult to measure the effectiveness of teaching methods in the classroom (Raterink; Scheffer & Rubenfeld, 2000). Even though this evidence was not presented with the operational definition, it is important to note that participants responded to the survey questions with similar views. The *outliers* theme was developed based on these participant responses.

Evidence of the difficulty defining and difficulty measuring is seen in the following participant responses. Participant's state that the effectiveness of teaching methods was "not always able to concretely determine", and it is "frustrating not to see their clinical assessment and patient care skills improve dramatically from one week to the next." A participate also responded by stating "I do not see their multiple choice test scores change much and this is very discouraging. I think it is because the test does not reflect actual learning."

This inability to concretely measure and determine effectiveness of teaching strategies that are found in the literature relates to the *assessment results* theme. It relates to *assessment results* because of the limited amount of assessment methods presented by the participants, hence the use of concept maps, exams, and discussion. The inability to measure makes it difficult to determine teaching strategies which may prohibit the various methods used to evaluate learning.

**Interpretation**

Analysis of each sub question reveals strong evidence of correlation to the operational definitions utilized for the purposes of this study. The sub question results pertaining to teaching methods produced very similar methods used by the research study participants. Within the operational definition, questioning was not identified. There are some significant correlation to the attributes sub question regarding questioning, with the use of Paul and Elder's (2008; 2011) intellectual standards and elements of thought. According to Paul and Elder (2008; 2011) questioning is the essence of developing critical thinking. Other methods that were evident in the literature, but not within the participant responses, are the use of modeling and use of feedback.

There were a few responses that expressed the use of group exams, but not instructor critique of written work or peer feedback.

The research participants' meaning of critical thinking in relation to the Facione's (1990) definition were fairly congruent. This finding illustrates that nursing educators are aware of the definition of critical thinking. Application is an area that the participants spoke of often within their written responses. Facione's (1990) definition reflected terms like interpretation and analysis among other aspects, but failed to mention anything about application.

The summary of the findings from the participant responses regarding attributes uncovered that some students may lack fundamental skills like reading and writing which are necessary to be successful within nursing programs. Furthermore, the participants failed to express responses regarding self-regulation, which is part of Facione's (1990) definition. Self-regulation is the ability to self-consciously monitor one's cognitive activities (Facione, 1990). Students must be cognizant of how they learn and any barriers to learning in order to seek help when the need arises.

The theme *assessment results* identifies that the only way nursing educators evaluated teaching strategies was through the use of concept maps, exams, and discussion. The result of this analysis consequently may illustrate a potential knowledge deficiency within the nursing educators regarding various ways to assess for effectiveness of their teaching and teaching methods. These results relate to the sub question regarding the challenges nursing educators face when integrating critical thinking into the classroom. There is a relationship between the operational definition and participant responses in relation to the time-consuming nature of integrating critical thinking into

the classroom. There is also evidence that correlated well within the literature review that pertains to the students' and faculty members' motivation, readiness and willingness to learn.

**Central Research Question**

The central research question of this study is *"What are nursing educators' lived experiences in assisting nursing students to develop critical thinking in the classroom at community college associate degree nursing programs in Nebraska?"* The lived experience of critical thinking that is identified as the operational definition includes the aspects of formal or informal education, use of varied teaching methods, varied years of nursing experiences, and the integration of critical thinking within the classroom. The lived experience of the nursing educators expresses the shared meaning of critical thinking, attributes of critical thinkers, effectiveness of teaching methods in the classroom and challenges to integrating critical thinking within the classroom setting. The classroom is a setting where nursing students come to a class held at a community college, with the intention of obtaining the information needed from the nursing educator to meet the learning objectives of the course and build on previous knowledge.

The purpose of this research study is to identify the lived experiences of nursing educators assisting nursing students to develop critical thinking skills within the classroom at community college ADN programs in Nebraska. The study also examines the nursing educators' meaning of critical thinking, the characteristics good critical thinkers need to possess, and the challenges nursing educators face when implementing critical thinking teaching methods within the classroom. Each of the sub questions is analyzed based on participant responses and compared to the operational definitions developed for this study.

The results of research identifies that the overall lived experience of assisting nursing students to develop critical thinking in the classroom must possess elements of the five sub questions. Without having knowledge regarding the meaning of critical thinking, critical thinking teaching strategies and how to measure the strategies effectiveness, how can one demonstrate the lived experience of assisting nursing to develop critical thinking in the classroom? The other aspects that must be considered in this sequential process are the students attributes necessary for them to be effective critical thinkers, as well as the challenges that faculty face integrating critical thinking teaching methods into the classroom.

After analyzing each sub question for similarities and variations within the literature, the researcher developed Figure 5.7. Central Research Question Analysis to aid in explaining the results. The nursing educators' lived experiences in assisting nursing students to develop critical thinking in the classroom at community college associate degree nursing programs in Nebraska involves each element of the sub questions that were presented within this study. Figure 5.7. first identifies the theme of *knowledge,* which includes the need for the nursing educators to have knowledge pertaining to the meaning of critical thinking, teaching strategies, and how to measure the effectiveness of teaching strategies. *Knowledge* must also be present within the nursing student regarding the meaning of critical thinking and measures to take to apply critical thinking during their nursing coursework. This *knowledge* must be present in order to obtain access to the lived experience.

The second theme is *obstacles,* which includes challenges and student attributes. It is necessary to address the challenges that prevent nursing educators from integrating critical thinking

teaching methods into the classroom. Time spent developing objectives, course content and teaching methods is a challenge that needs to be examined not only by faculty but at higher levels within the academic setting. Another challenge that must be addressed is faculty beliefs and values that may hinder their thought regarding the need to integrate critical thinking into the classroom. Not everyone values education in the same manner, but in order to gain student success these obstacles must be overcome.

The other element of *obstacles* is student attributes. There is not one student that will mimic another in the way they learn. Each student comes to the classroom with a different set of skills, motives and values. The knowledge and obstacles related to the lived experience of critical thinking in the classroom must be addressed in order to get to the thematic interpretation of the Figure 5.7. The *Lived Experience.*

***Figure 5.7.*** **Thematic Interpretation: Central Research Question**

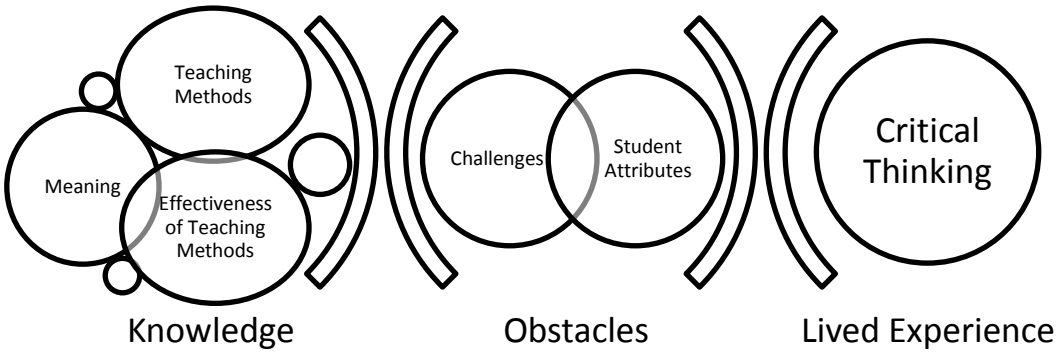


*Figure 5.7.* This model represents the thematic interpretation of the results of study.

## Overall Interpretation

The results of this study identifies the lived experience of the nursing educators within the classroom setting. This study identifies that initially, it is imperative to assess the knowledge of the nursing educators for their level of understanding pertaining to critical thinking, which includes understanding the meaning, teaching methods, and evaluative measures for ensuring critical thinking is being achieved by nursing students. It is also imperative that the student's knowledge pertaining to critical thinking be assessed. It is unfair to assume that the nursing students possess the knowledge to critically think when they begin their nursing courses. Secondly, nursing educators must recognize the challenges that they may face integrating critical thinking into the classroom.

Challenges may include their own beliefs and values, poor course design, and limited time. Student attributes can be a hindrance to integrating critical thinking into the classroom setting, but nursing faculty must be cognizant that every student does not possess the same skills and attributes when they enter nursing school. Each student possesses unique skills and attributes that nursing educators must be willing to help strengthen by being a facilitator of their learning in order to facilitate success.

**Recommendations**

In an effort to achieve the total *lived experience* in assisting nursing students to develop critical thinking in the classroom at community college associate degree nursing programs, it is imperative that all elements within Figure 5.7. Central Research Question Analysis be evaluated. Nursing educators must gain the knowledge that they need to understand the meaning of critical thinking, along with how to develop courses that reflect the use of teaching methods within the classroom setting. Assumptions cannot be made that new nursing educators completing their MSN or nursing educators that have taught for long periods of time understand the elements involved with implementing critical thinking teaching methods into their classrooms. Professional development within nursing education, must be implemented to ensure nursing educators can integrate critical thinking into the classroom setting. Additionally, evaluative measures, such as seasoned nursing educator mentors that can observe classes, provide recommendations and provide support are necessary to improve nursing educator knowledge regarding implementing critical thinking into the classroom setting.

There is a definite lack of assessment results, only concept maps, exams, and discussions included in the participant responses. There is more to assessing a student's knowledge than only utilizing exams, discussion and concept maps. Written essay exams can illustrate understanding and application of a concept more deeply than a multiple choice exams. The use of various teaching methods in the classroom can introduce other means of assessing learning and students critical thinking abilities. These results may indicate a potential knowledge deficiency within the nursing educators regarding various ways to assess for effectiveness of their teaching and teaching strategies.

Critical thinking can no longer continue to be a term that nursing educators use without applying it within the classroom setting. Critical thinking needs to be a living, breathing organism within all nursing classrooms. Current curriculums must be explored for content saturation, repeating content, and obsolete content. Evidence must be gathered regarding new trends within nursing curriculums, and nursing programs must make strides to improve the way their nursing educators are teaching within the classroom setting.

The clinical setting should not be the only area in which the students gain the ability to apply their knowledge. Mannequins can be brought into the classroom to simulate clinical experiences, and probing questions can be asked so that students can illicit more critical thinking. There must also be other means to evaluate critical thinking within the classroom apart from multiple-choice NCLEX style examinations. Nursing educators need to be encouraged to use short answer essay exams, case study assignments, concept maps, and other means of evaluating if their teaching methods are going to be effective.

The overall goal of a nursing educator should be to encourage success within nursing students. Encouraging success can only occur if the nursing educator is knowledgeable about processes to assist the student to be successful and the student is motivated to be successful. Mandatory professional development needs to be implemented to assist nursing educators to understand critical thinking and how to implement teaching methods in the classroom. This professional development is not only to understand critical thinking, but also to gain an understanding that each student comes to college with varying attributes. It is part of a nursing educator's profession to determine if students may need to develop some of these attributes in order to be successful at critical thinking.

The concept of critical thinking must be introduced within the initial nursing course. Students must be given the foundation for how they are going to be expected to think within the nursing program. This thought process also includes how to study and how to build the skills they need to be successful. Students must also be taught to recognize that they are responsible for their own "self-regulation." They are responsible for monitoring their own cognitive activities (Facione, 1990). The process as an educator is to assist the student with the tools to be successful, but along with this comes student accountability and responsibility.

**Limitations of the Study**

This study focused on one degree level nursing education, the ADN programs, therefore making this a limitation to this study. There are many other degree levels that could have been approached to answer the same questions as the ADN programs at community colleges in Nebraska,

therefore limiting this study to a very specific population within nursing programs which may have limited the results.

An online survey was utilized as the instrument for data collection for the purposes of this study. The online survey posed a limitation to this study, due in part to the inability to ask other probing questions to elicit more detailed response. Participants were asked to provide contact information for further questioning, but none of the participants provided this information. The lack of volunteers most likely prohibited the ability to collect more detailed responses from the participants.

A range of eight to fourteen surveys were necessary to obtain an appropriate sample size for this qualitative research study. Eight surveys were returned, with responses from two out of the six community colleges within Nebraska. This may have posed a limitation to the study because a survey was not received from each community college in Nebraska. If participant responses would have been received from all of the colleges, this may have produced more detailed responses or provided a variety of responses.

**Future Research**

Critical thinking is a very broad topic, not only used in nursing, but other educational arenas and industries. Within nursing education there has been a massive amount of research conducted on the definition of critical thinking. The findings of this study suggest that nurses possess a general understanding of critical thinking, but lack comprehensive knowledge on how to implement critical thinking within the classroom setting. Further research regarding teaching nursing educators how to implement critical thinking in the classroom is necessary. Research should be conducted by first

introducing professional development courses on teaching methods and evaluative measures to integrate critical thinking in the classroom setting. Then evaluating effectiveness of implementation by examining evaluative methods, such as ATI proctored exam scores or essay exams for understanding of a concept that was introduced in class. A recommendation would be to evaluate previous semesters or congruent courses to see which methods are most effective.

Future research should be conducted on methods to alter or manage nursing educators' beliefs regarding teaching strategies within the classroom. Educators should be encouraged to move from lecture -based teaching to interactive teaching methods that facilitate learning. In addition nursing educators must be encouraged to alter the way they are teaching in order to enhance the learning process for the nursing students.

Continued research on students attributes regarding their ability to critically think is necessary to be able to assist students to be successful. It is imperative that nursing educators recognize that every nursing student enters nursing school with various attributes. Students may possess more confidence than others, have an easier time memorizing, and perform well on exams, but others may not. Further research is necessary to identify how to create courses that facilitate the development of attributes necessary become a sound critical thinker.

This research study could be duplicated at all levels of nursing education. At the ADN level the nursing educators had a general understanding of critical thinking, with a need for a more in depth understanding of the application of the concept. At the BSN level or even the graduate level this study could be duplicated to see if the results parallel or if there a more in depth understanding of critical thinking at the higher levels of nursing education.

## Summary

In the changing demographics of healthcare, nursing education has to change the way in which it approaches teaching not only in the clinical setting, but in the classroom setting as well (IOM, 2011; Twibell, Ryan, & Hermiz, 2005; Candela, Dalley, & Benzel-Lindley, 2006; Wagner, 2014). With the diversity of the healthcare system, multiple clinical settings, and broad range of knowledge expected, nurse educators can no longer teach with only lecture and expect student to apply this information in the clinical setting at the bedside.

This study identifies that it is necessary for nursing students to be introduced to the concept of critical thinking early within the nursing program. In order for nursing students to be introduced to the concept early, nursing educators must possess an understanding of the meaning of critical thinking, teaching methods, and how to evaluate teaching methods. They must also be aware of their own beliefs and values regarding critical thinking and the challenges, such as time, that may affect their ability to integrate critical thinking into the classroom. Nursing educators must also understand the attributes that their students possess and do not possess. If nursing students lack the skills and attributes necessary to be a good critical thinker, the nursing educator needs to take the time to assist the student to develop these traits. To maximize teaching students to critically think in the classroom setting, all aspects of knowledge and obstacles must be addressed in order to aid in student success.

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Appendix A

**Letter Inviting Participants**

Date:

**DEVELOPMENT OF CRITICAL THINKING IN NURSING STUDENTS IN THE CLASSROOM SETTING WITHIN COMMUNITY COLLEGE ADN PROGRAMS**

**IRB # CSM 1510**

Dear Nursing Educator

You are invited to take part in a research study because you are a nurse educator. The purpose of this phenomenological study is to identify the lived experiences of nursing educators within Nebraska at community colleges regarding how they assist nursing students to develop critical thinking skills within the classroom. The study will also examine the nursing educators' meaning of critical thinking, the characteristics good critical thinkers need to possess, and the challenges nurse educators face when implementing critical thinking teaching methods within the classroom. This research study is being conducted as part of the requirements of my Doctorate in Education, Health Professional Education program at College of Saint Mary.

You may receive no direct benefit from participating in this study, but the information gained will be helpful regarding clarifying the definition of critical thinking in nursing education and the teaching methods utilized.

Should you decide to participate you are being asked to complete the following-online survey which should take approximately 30 minutes to complete. Within the survey, you may also voluntarily provide contact information for a future phone interview that will be conducted by the researcher. Your participation is strictly voluntary. Furthermore, your response or decision not to response will not affect your relationship with College of Saint Mary or any other entity. Please note that your responses will be used for research purposes only and will be strictly confidential. No one at College of Saint Mary will every associate your individual responses

with your name or email address. The information from this study may be published in journals and presented at professional meetings.

Your completion and submission of the questionnaire indicate your consent to participate in the study. You may withdraw at any time by exiting the survey. This study does not cost the participant in any way, except the time spent completing the survey. There is no compensation or known risk associated with participation.

Please read *The Rights of Research Participants* below. If you have questions about your rights as a research participant, you may contact the College of Saint Mary Institutional Review Board, 7000 Mercy Road, Omaha, NE (402-399-2400)

Thank you sincerely for participating in this important research study. If you have comments, problems or questions about the survey, please contact the researcher.

If you are 19 years of age or older and agree to the above please begin survey by clicking on the following link https://www.surveymonkey.com/r/9YGNL6Q

Sincerely,

Stacy H. Werner

308-830-3631

Swerner86@csm.edu

# THE RIGHTS OF RESEARCH PARTICIPANTS*

## AS A RESEARCH PARTICIPANT AT COLLEGE OF SAINT MARY

## YOU HAVE THE RIGHT:

1. TO BE TOLD EVERYTHING YOU NEED TO KNOW ABOUT THE RESEARCH BEFORE YOU ARE ASKED TO DECIDE WHETHER OR NOT TO TAKE PART IN THE RESEARCH STUDY. The research will be explained to you in a way that assures you understand enough to decide whether or not to take part.

2. TO FREELY DECIDE WHETHER OR NOT TO TAKE PART IN THE RESEARCH.

3. TO DECIDE NOT TO BE IN THE RESEARCH, OR TO STOP PARTICIPATING IN THE RESEARCH AT ANY TIME. This will not affect your relationship with the investigator or College of Saint Mary.

4. TO ASK QUESTIONS ABOUT THE RESEARCH AT ANY TIME. The investigator will answer your questions honestly and completely.

5. TO KNOW THAT YOUR SAFETY AND WELFARE WILL ALWAYS COME FIRST. The investigator will display the highest possible degree of skill and care throughout this research. Any risks or discomforts will be minimized as much as possible.

6. TO PRIVACY AND CONFIDENTIALITY. The investigator will treat information about you carefully and will respect your privacy.

7. TO KEEP ALL LEGAL RIGHTS THAT YOU HAVE NOW. You are not giving up any of your legal rights by taking part in this research.

8. TO BE TREATED WITH DIGNITY AND REPSECT AT ALL TIMES

**THE INSTITUTIONAL REVIEW BOARD IS RESPONSIBLE FOR ASSURING THAT YOUR RIGHTS AND WELFARE ARE PROTECTED. IF YOU HAVE ANY QUESTIONS ABOUT YOUR RIGHTS, CONTACT THE INSTITUTIONAL REVIEW BOARD CHAIR AT (402)399-2400.** *ADAPTED FROM THE UNIVERSITY OF NERAKSA MEDICAL CENTER, IRB WITH PERMISSION

Appendix B

**Online Survey**

# Development of Critical Thinking in Nursing Students in the Classroom Setting within Nebraska Community College ADN programs

## Survey Information

**Thank you for taking the time to participate in this survey. By responding to the questions on this survey you will be assisting to fulfill the requirements to complete my dissertation. The purpose of this phenomenological study is to identify the lived experiences of nursing educators at community colleges within Nebraska regarding their understanding of the meaning of critical thinking and the process to develop critical thinking skills in nursing students within the classroom setting. Furthermore, the study will examine the nursing educators' understanding of critical thinking by evaluating the teaching methods utilized within the classroom along with the identified barriers to integrating teaching methods within nursing curriculum. Please begin the survey by completing demographic information and then begin answering questions with as much detail as possible. The survey should take no more than 30 minutes to complete.**

**Again, thank you for participating.**

**1. Which community college in Nebraska are you employed as a nurse educator?**

- Central Community College
- Mid-Plains Community College
- Northeast Community College
- Metropolitan Community College
- Southeast Community College
- Western Community College
- I do not work at a community college in Nebraska

**2. What is your current employment status in nursing education?**

- Full Time
- Part Time

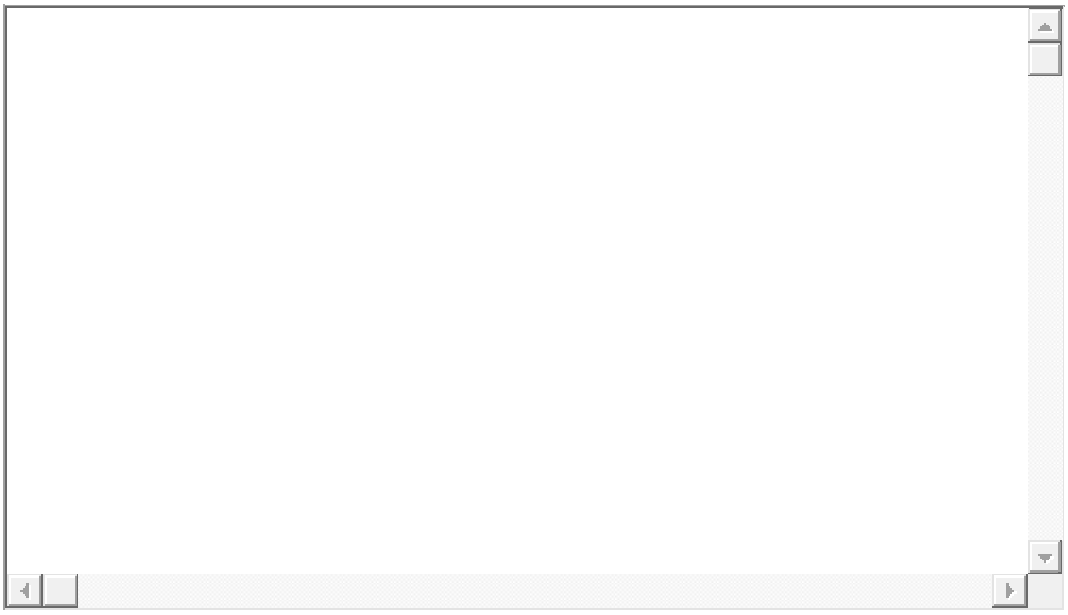
**3. What is the highest level of nursing education you have completed?**

- Diploma
- Associate of Science in Nursing (ASN or ADN)
- Bachelor of Science in Nursing (BSN)
- Masters of Science in Nursing (MSN)
- Doctorate
- Other (please specify)

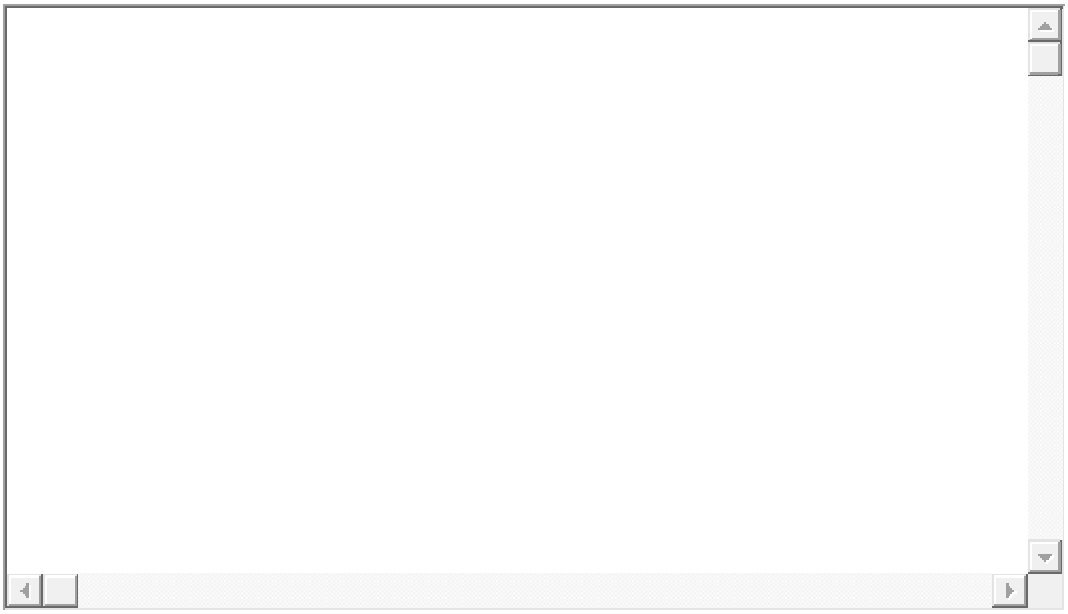
**4. If you answered yes to having a BSN degree, are you currently pursuing an MSN?**

- Yes
- No

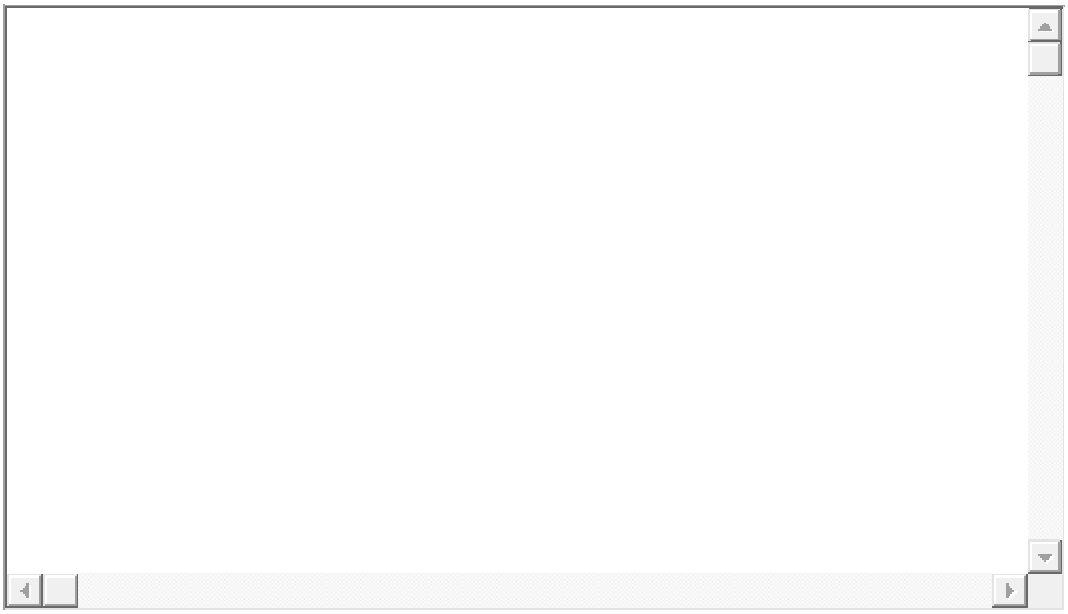
**5. Please describe what critical thinking means to you?**



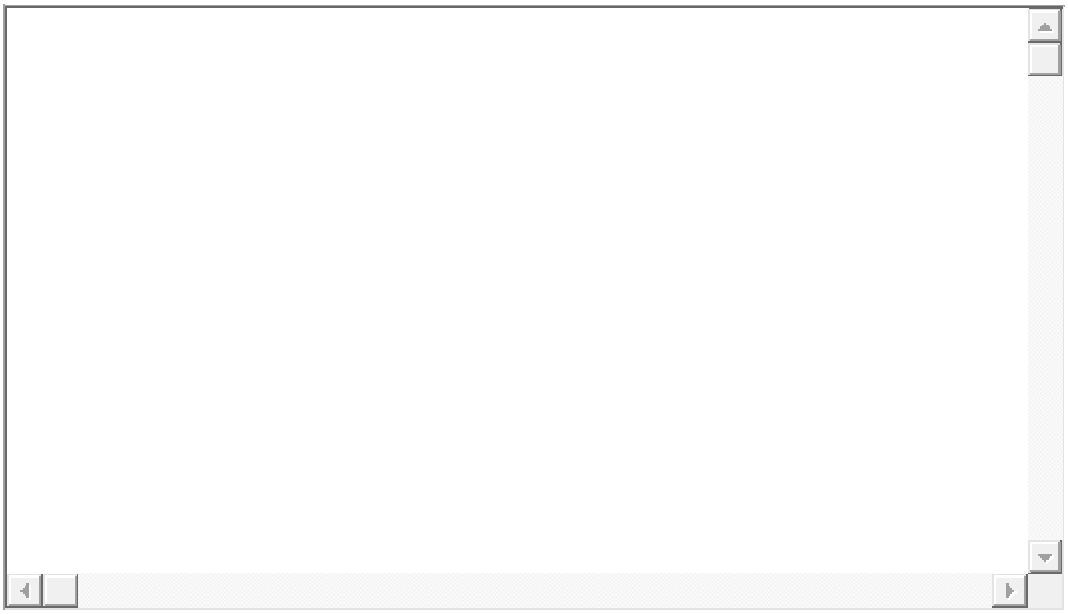
**6. Within the classroom setting, what do you do to assist nursing students to develop critical thinking?**



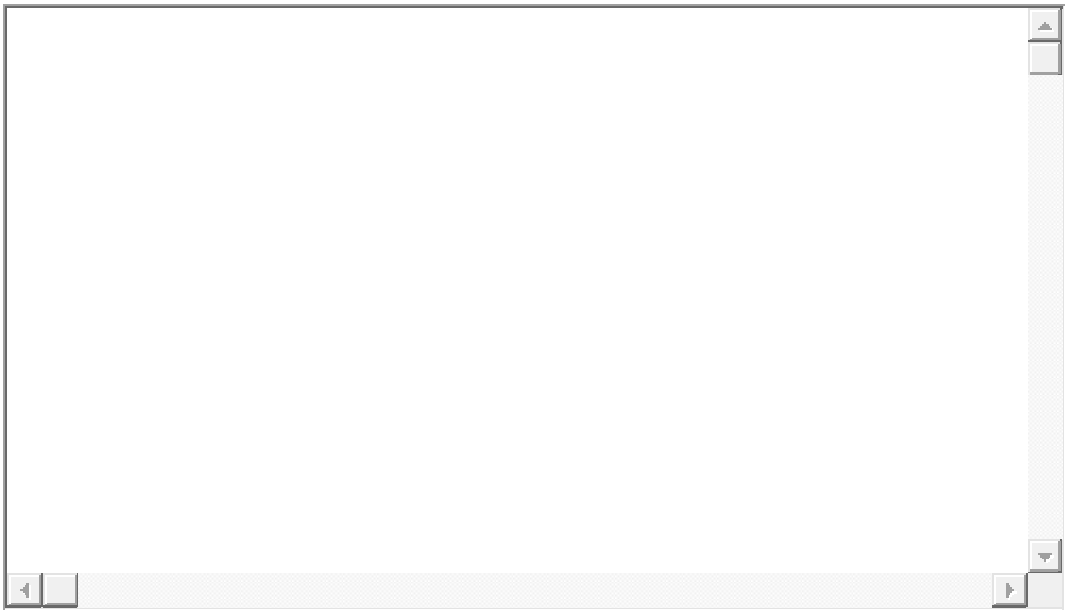
**7. Please give specific examples of how you utilize teaching methods within the classroom to develop critical thinking in nursing students?**



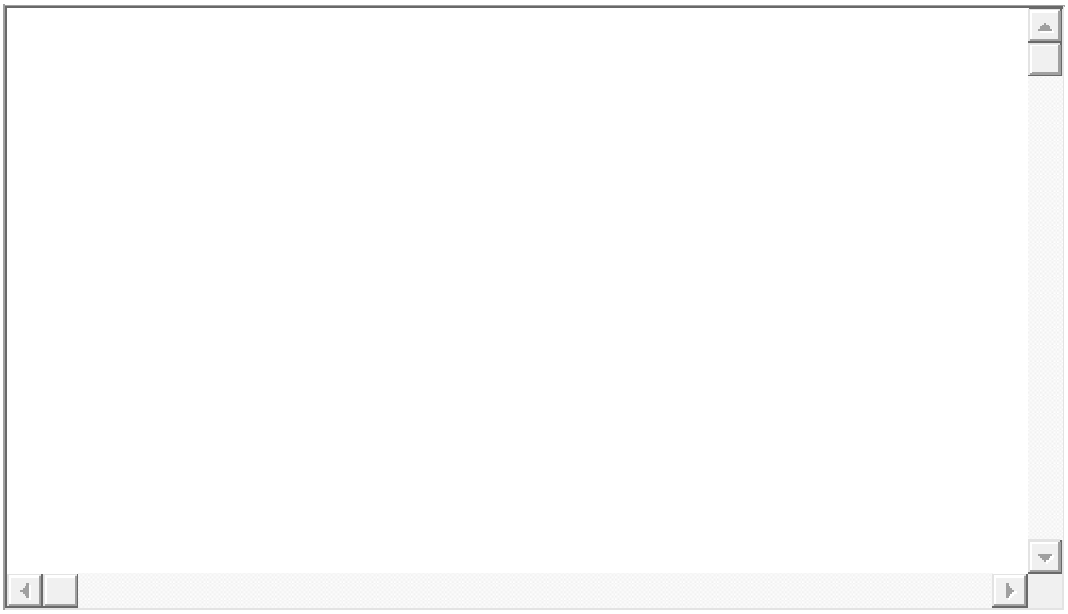
**8. In the classroom setting, how do you as an educator know that the teaching methods used are enhancing the students' critical thinking? Please list specific examples.**



**9. What characteristics do you perceive nursing students need to possess to critically think?**



**10. Please describe any challenges that you have faced when integrating critical thinking into the classroom?**



**11. What else, if anything, do you wish to share regarding your experiences in teaching critical thinking in the classroom?**

**12. If you would like to volunteer to be contacted for further interview to increase depth on data gathered, please provide an email or phone number.**

**Interview Questions**

Included within this section are the initial survey questions that are online within Survey Monkey ® and the follow up questions that will be utilized if participants voluntarily give permission for a follow up interview.

Survey Monkey ® Questions

1. Please describe what critical thinking means to you?
2. Within the classroom setting, what do you do to assist nursing students to develop critical thinking?
3. Please give specific examples of how you utilize teaching methods within the classroom to develop critical thinking in nursing students?
4. In the classroom setting, how do you as an educator know that the teaching methods used are enhancing the students' critical thinking? Please list specific examples.
5. What characteristics do you perceive nursing students need to possess to critically think?
6. Please describe any challenges that you have faced when integrating critical thinking into the classroom?
7. What else, if anything, do you wish to share regarding your experiences in teaching critical thinking in the classroom?
8. If you would like to volunteer to be contacted for further interview to increase depth on data gathered, please provide an email or phone number.

**Post Survey Monkey Phone Interview Questions**

1. In the original survey you stated that critical thinking means *(Participants response in original survey)* to you. Can you expand on what you meant by *(Participants response in original survey that needs clarification)?*
2. In the original survey you mentioned that you use *(Participant response in original survey to methods used)* to develop critical thinking within your students in the classroom setting. You also stated in question 4 of the original survey ways in which you can identify that students are enhancing their critical thinking skills. Can you expand in more detail on how the (*Method used to enhance critical thinking)* (*Participants original response that needs further clarification on enhancing critical thinking)*?
3. In the original survey you listed some characteristics that you perceive nursing students need to possess to critically think. Can you elaborate on (*Participants original response that needs clarification regarding characteristics)?*
4. In the original survey you listed some challenges that you have faced when integrating critical thinking into the classroom. Can you elaborate further on *(Participants original response that needs clarification and/or more depth regarding challenges)?*
5. What else, if anything, do you wish to share regarding your experiences in teaching critical thinking in the classroom?

**Interview Protocol**

*Interview Protocol: Development of Critical Thinking in Nursing Students in the Classroom Setting within Community College Associate Degree Nursing Programs*

Time of Interview: (Interviewee will be made aware that the interview should take approximately no longer than 30 minutes)

Date:

Place:

Interviewer:

Interviewee:

Position of Interviewee:

Description of project: This interview is strictly voluntary and participants were only contacted if they gave contact information on the open-ended online survey that was sent out in the initial phase of the research study. The purpose of these post follow up phone interviews is to increase the depth of gathered information regarding the open-ended online survey questions (Creswell, 2013).

1. In the original survey you stated that critical thinking means *(Participants response in original survey)* to you. Can you expand on what you meant by *(Participants response in original survey that needs clarification)?*
2. In the original survey you mentioned that you use *(Participant response in original survey to methods used)* to develop critical thinking within your students in the classroom setting. You also stated in question 4 of the original survey ways in which you can identify that students are enhancing their critical thinking skills. Can you expand in more detail on how the (*Method used to enhance critical thinking)* (*Participants original response that needs further clarification on enhancing critical thinking)*?

3. In the original survey you listed some characteristics that you perceive nursing students need to possess to critically think. Can you elaborate on (*Participants original response that needs clarification regarding characteristics)?*
4. In the original survey you listed some challenges that you have faced when integrating critical thinking into the classroom. Can you elaborate further on *(Participants original response that needs clarification and/or more depth regarding challenges)?*
5. What else, if anything, do you wish to share regarding your experiences in teaching critical thinking in the classroom?

*At the completion of the interview. Inform participant's that the typed written transcript will be emailed to them asking for them to review the transcripts and return any edits back to the researcher within a week. If there is not a response, then it will be assumed by the researcher that now edits are necessary.

**Pre Phone Interview Email**

Thank you offering your contact information and for your interest in further participation in the research study: *Development of Critical Thinking in Nursing Students in the Classroom Setting within Community College Associate Degree Nursing Programs.* Your input is so valuable to not only my research, but to nursing education in general.

If the Survey Monkey ® responses that you submitted require further clarification and questioning, I would like to contact you via phone on a day and time that is convenient for you. The phone interview will take no longer than 30 minutes. Please email me at swerner86@csm.edu or contact me via phone at 308-830-3631 to set up a time for the phone interview.

Sincerely

Stacy Werner RN, MSN Ed.D. (C)

**Post Phone Interview Transcript Email**

Thank you for your participation in the research study: *Development of Critical Thinking in Nursing Students in the Classroom Setting within Community College Associate Degree Nursing Programs.* Your input is so valuable to not only my research, but to nursing education in general.

Attached you will find your responses to the phone interview questions that were completed on (Insert Date). Please review your responses to ensure that the information was transcribed accurately. If you find that there are corrections needed, please edit the document and return it via attachment to me at swerner86@csm.edu. If I do not receive an email within 1 week with requested edits to the document, I will assume that there were not any needed corrections.

Sincerely

Stacy Werner RN, MSN Ed.D. (C)