

## **The Critical Thinking Teaching Methods In Nursing Students**

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### **Abstract**

*Critical thinking “thinking explicitly aimed at well-founded judgment, utilizing appropriate evaluative standards in an attempt to determine the true worth, merit, or value of something”. “Education knits together critical thinking ...with the fabric of students’ experiences as a synthesizing process, providing students with the tools they will need to make sense of their world and the choices available to them and the insight they will need to make those choices wisely”. The educational process seeks to produce growth in cognitive development, but it is not the only way to achieve growth. Learning and thinking are processes that, if nurtured, will continue for a lifetime. An assumption among many educators is that nursing students who attend college will develop the necessary critical thinking skills simply by attendance in class and participation in class discussion. Class and small group discussions, case studies and the use of nursing scenarios are very popular with instructors. Educators know that critical thinking is enhanced when nursing students come to class prepared. When instructors assign written papers, journals, verbal presentations and in class quizzes, students are encouraged to thoroughly prepare. Students have not endorsed focused critical thinking courses as helpful. They tend to favor debate, discussion and the freedom to have ideas.*

**Key Words:** Critical Thinking, Nursing Student, Teaching Methods

### **CRITICAL THINKING**

The word “critical” comes from the Greek word *kritikos*, meaning “critic”. To be critical means to question, to make sense of, to analyze. By being critical, one examines his or her own thinking and the thinking of others. The term “critical” is often thought of in a negative, destructive way; however, using it to describe thinking can portray a positive process in which one challenges one’s thinking and the thinking of others (Chaffee, 1994).

Despite the attention being devoted to critical thinking, educators are still wrestling with defining the term “critical thinking”. First, the concept of critical thinking may differ depending upon whether one’s definition is developed from the discipline of philosophy, psychology, or education. Second, the term “critical thinking” can apply to various frames of reference, referring to such situations as improving reading comprehension, resolving interpersonal conflict, or justifying one’s position on a controversial social issue. Third, the application of critical thinking can be done in small increments like changing a strategy for a lesson plan or on a large scale like making a comprehensive revision to a curriculum. Fourth, and finally, the nature of critical thinking instruction is influenced by grade level, subject area and each teacher’s unique teaching style (Frisby, 1991). As a result of all these variables, the term “critical thinking” can come to mean different things to different educators.

Richard Paul, a recognized authority of critical thinking from philosophy, describes two distinct aspects of critical thinking: a narrow, weak sense and a broad, strong sense. The narrow weak sense involves skills that are extrinsic or external to the character of the person, consisting formal, inductive, and informal logic. In the broad, strong sense, Paul views critical thinking as a process that is integrated within the individual, consisting of social conscious effort that is considered essential to the “free, rational, autonomous mind” (Paul, 1984).

Nursing has primarily relied on definitions of critical thinking from other disciplines, Badman & Bandman (1995) authored a critical thinking text from the perspective of nursing. These authors define critical thinking as “the rational examination of ideas, inferences, assumptions, principles, arguments, conclusions, issues, statements, beliefs, and actions”. Scheffer & Rubenfeld (2000) report the results of a consensus definition of critical thinking specific to nursing. An international panel of expert nurses participated in a Delphistudy from 1995 to 1998 to form the following consensus definition: “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, inquisitiveness, intellectual integrity, intuition, 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” (Scheffer & Rubenfeld, 2000). His definition affirms the importance of the affective domain associated with critical thinking as described by the Delphi definition reported by Facione (1990). The nursing experts, however, included two additional affective components-creativity and intuition. A concern remains however, that based on the way critical thinking is addressed in nursing, a limited understanding of its meaning continues to exist within the discipline (Cody, 2002; Simpson & Courtney, 2002).

Yıldırım (2011), critical thinking is “the process of searching, obtaining, evaluating, analyzing, synthesizing and conceptualizing information as a guide for developing one’s thinking with self-awareness, and the ability to use this information by adding creativity and taking risks”.

#### **IMPORTANCE OF CRITICAL THINKING IN NURSING**

“Education knits together critical thinking ...with the fabric of students’ experiences as a synthesizing process, providing students with the tools they will need to make sense of their world and the choices available to them and the insight they will need to make those choices wisely” (Chaffee, 1992). The above assertion incorporates the concepts of critical thinking, life-long adult learning and the professional mandates that nurses will practice. Though many schools of nursing ascribe to these ideals of critical thinking skills, many employers feel that too many nursing graduates are not able to problem solve and critically think as a new employee. The characterization of critical thinking by Dewey (1933) and Ennis (1985) as a unique cognitive thought process, and by Siegel (1988) and Ennis (1962) as a problem solving technique, that uses logical propositions, appears congruent with the nursing process. Sullivan (1992) state that the scientific method appears to have a better explanation for critical thinking in nursing education than does the nursing process.

Doenges & Moorhouse (2003) described the concept of the nursing process as resolution by reflection, i.e., the nurse makes an assessment of the problem. During the assessment phase data is collected. Next a diagnosis is made using a knowledge base. A plan of action is then developed. Intervention follows based on the diagnosis and action plan. The last phase is reflection on the choices made and then evaluation of the effects of the interventions used. Reflective critical thought, a tenet of critical thinking as a basis for decision making, was also supported by Paul & Heaslip (1995). They saw reflective thought as necessary to insure that the nurse has the depth of knowledge needed to immediately comprehend the practice situation he or she is faced with. The ability to deliver safe, effective, and quality nursing care to patients is contingent on the nurse having the necessary knowledge upon which to base decisionmaking.

Learning and thinking are interrelated lifelong processes (Chaffee, 1994). To add depth and substance to knowledge, one must learn to refine and adjust one’s thinking. With practice and time, one can get better at making more thoughtful observations and judgments and can recognize how values are reflected in thinking and behaving (Yıldırım, & Özkahraman 2011d). The educational process seeks to produce growth in cognitive development, but it is not the only way to achieve growth. Learning and thinking are processes that, if nurtured, will continue for a lifetime.

The huge amount of knowledge today, and its continuing exponential growth, precludes a nurse from being an effective professional for long if he or she attempts to function only on the information acquired in school. The information explosion is one factor pointing to the need for lifelong learning (Schank, 1990). Because learning is a life-long process. It is more important that nurses and nurses students be taught how to think rather than what to think. Consider an analogy that illustrates this point: If you feed a man a fish, he eats for one meal; if you teach a man to fish, he feeds himself for a lifetime. In the same way, if you give nurses and nurse students few alternatives, then they are limited in their ability to sustain themselves. If you teach nurses to think for themselves, they will have the tools to meet the ever-increasing demands of a lifetime of nursing practice and nursing students practice (Özkahraman, & Yıldırım, 2011; Yıldırım, & Özkahraman, 2011c).

One cannot talk about the importance of critical thinking without mentioning the fact that we are living in a complex and evolving society. Knowledge and information change rapidly and their distribution is almost instantaneous. The technologic environment is transforming lives. In nursing, technology can overshadow the compassionate art of nursing. Nurses have the opportunity to use their critical thinking to create nursing systems that use technology within a humane and caring environment (Miller & Babcock, 1996; Yıldırım, & Özkahraman 2011a).

The American Association of Colleges of Nursing (1986), the diversity and complexity of nursing practice make it necessary to prepare nurses who can think critically, and who have a sound education in nursing science and the humanities. It is increasingly important that nurses develop the critical thinking disposition and skills needed to process and evaluate both previously held as well as new information. The skill in solving problems critically is a trait for the nurse of the twenty-first century not only does problem resolution require a sound knowledge base; it implies the ability to discriminate and synthesize information, to make decisions, and to implement those decisions appropriately (Hickman, 1993; Yıldırım 2010). Critical thinking helps to enhance consumer-focused care in any arena but especially nursing. Many times in nursing care is based on what is best for everyone but the patient/client. Both providers and recipients of health care services are focusing on consumer satisfaction. This focus challenges the disposition, knowledge and skills of nurses. Nursing can easily be trapped into believing that what is best for the nurse should be best for the patient. This is more often than not a misnomer. One of the greatest consumer-focused skill is the ability to solve problems in collaboration with customers. To provide consumer-focused care, nurses need to have a critical thinking disposition and skills that utilize logical/analytical and intuitive/creative approaches to solving problems (Snyder, 1993).

### **TEACHING CRITICAL THINKING**

Literature suggests that the importance of developing critical thinking skills and abilities within the nursing curriculum cannot be overestimated. An assumption among many educators is that students who attend college will develop the necessary critical thinking skills simply by attendance in class and participation in class discussion. Conversely, with the current emphasis on improving critical thinking and student achievement, educational institutions, colleges, and universities have been offering courses designed to improve students' critical thinking skills, either as complete, isolated courses or within academic disciplines. Although improving students' critical thinking abilities has become a primary goal for education, there is continual debate over the most appropriate or effective pedagogical strategies educators can use to improve those abilities.

Gardner (1993) advocated that people have a variety of different intelligences. He identified seven components of intelligences that he believed are distinct from each other. Although Gardner valued individuals who can think critically about literature and world events, he cautioned that "one must be careful not to assume that it is a particular, dissociable variety of human cognition", while suggesting that "particular domains of human competence seem to require their own brand of critical thinking". The kind of critical thinking required for a musician might be quite different from the critical thinking required for a historian or biologist because "each domain exhibits its own particular logic of implications" (Gardner, 1993); hence, training for one domain does not necessarily provide transfer to other domains. Further, instructors should not assume that critical thinking skills taught in a standalone critical thinking course will transfer to those skills needed for a history course; rather, Gardner believed that Only if the lessons of critical thinking are deliberately revisited in each of the relevant classes or exercises is there any possibility that a more general virtue like reflectiveness or taking the perspective of the other has any chance of emerging.

As with Gardner (1993), Sternberg (1997) believed that conventional notions of intelligence and intelligence tests do not necessarily reflect talent or wisdom. Similar to Gardner's theory of multiple intelligences, Sternberg's theory of successful human intelligences, often referred to as the triarchic theory, consists of three components: practical intelligence, experiential intelligence, and componential intelligence. Practical intelligence refers to "internal abilities [or] mental mechanisms" (Sternberg, 2008) and can lead to more-or-less intelligent behavior; experiential intelligence examines individuals' "experience in handling a task"; and componential intelligence refers to the external world and includes "environmental adaptation, environmental selection, and environmental shaping". His theory takes into account the strengths and differences of individuals while considering the sociocultural context in which they live. Sternberg believed intelligence can be increased through study and practice, and encouraged educators to assist students so they can use and develop all of their skills and perform well in all areas.

Halpern (1999) maintained critical thinking skills should be taught within a variety of contexts and for transfer so that students can apply the knowledge and skills into other domains. In agreement with Paul (2004) and P. A. Facione (2006), Halpern affirmed that critical thinking instruction must address student dispositions, while acknowledging "it is not enough to teach college students the skills of critical thinking if they are not inclined to use them". Further, students should not only have a disposition toward critical thinking, they should also possess the willingness to apply it. It is, therefore, crucial that students be taught the value of critical, reflective thinking, and the essential effort needed to achieve it. As indicated by Halpern (1999), it is vital that teachers encourage students to apply the knowledge and skills learned in one context to other situations. Students should be encouraged to transfer critical thinking knowledge, skills, and dispositions learned in the educational environment to their personal and professional lives.

Perkins & Salomon (1988) viewed the teacher as a guide and mentor and suggested the three basic tools that can elicit thoughtful learning are Socratic method-discussion, didactic instruction, and coaching for understanding performances through practice, self-assessment, and informative feedback. Perkins asserted that "knowledge and skill in themselves do not guarantee understanding", and encouraged educators to promote transfer by helping students discover the connections between their lives and the subject matter they are being taught. Perkins noted understanding a topic of study is "a matter of being able to perform in a variety of thought-demanding ways with the topic, for instance to: explain, muster evidence, find examples, generalize, apply concepts, analogize, represent in a new way". Perkins outlined six priorities for educators who teach for understanding: making learning a longterm, thinking-centered process; providing for rich, ongoing assessment; supporting learning with powerful representations; paying heed to developmental factors; inducting students into the discipline; and teaching for transfer.

### ***Teaching Methods Of Critical Thinking In Nursing Students***

Nursing students and teachers value critical thinking in nursing because they believe it can improve Professional standards of practice, stimulate inquiry, encourage sound reasoning in practice, and contribute to personal and Professional development. While students and educators are in agreement as to why they value critical thinking, they may differ in how they believe it should be taught. Some educators have demonstrated that they favor focused assignments and readings on the concept itself. Class and small group discussions, case studies and the use of nursing scenarios are very popular with instructors. Educators know that critical thinking is enhanced when students come to class prepared. When instructors assign written papers, journals, verbal presentations and in class quizzes, students are encouraged to thoroughly prepare. Students have not endorsed focused critical thinking courses as helpful. They tend to favor debate, discussion and the freedom to share ideas (Brigham, 1993; Chenoweth, 1997; Glen, 1995; Lemire, 2002; Miller & Malcolm, 1990; Yıldırım, & Özsoy, 2011).

**Written and Oral Assignments:** Written and oral exercises give students the opportunity to thoroughly explore a particular topic, and to develop critical thinking skills independently of others. These assignments also give faculty the opportunity to evaluate each student's critical thinking ability, independent of the group. Collaboration is crucial to good nursing practice. Nurses must be able to assess patients' conditions and clearly convey that information to their colleagues in nursing and other health care disciplines. Martin (1996) conducted Martin (1996) conducted focused critical thinking workshops for nursing students using tutorials and problem solving techniques to emphasize critical thinking. Faculty evaluated the written documents for evidence of reflective skepticism, identification of assumptions and exploration of alternatives.

The students demonstrated evidence of improve thinking skills overall, but few of them demonstrated use of all three critical thinking skills tested. Students were far more likely to identify and challenge assumptions and to explore alternative solutions than they were to demonstrate reflective skepticism (Lemire, 2002; Martin, 1996; Sedlak & Doheny, 1998; Youngblood & Beitz, 2001).

**Focusing on Thinking Skills:** To incorporate critical thinking into the curriculum, nurse educators must either increase classroom time, or decrease content in order to teach concets rather than facts. The body of nursing knowledge is too vast for students to memorize facts. Students must learn istead to synthesize and analyze information. Critical thinking has been positevely associated with active learning strategies and the degree to which students interact with instructors and each other. Educators Nurse educators have suggested clustering or eliminating content whenever possible in order to decrease course time and allow students to become active participants in learning. Nursing courses have an advantage in that they are usually taught in three or four blocks of time. If content can be clustered and presented efficiently, students gain additional time for critical reflection (Brigham, 1993; Brock & Butts, 1998; Fopma-Loy & Ulrich, 1999; Henry, 1971; Hickman, 1993; Lemire, 2002; Youngblood & Beitz, 2001; Yıldırım, & Özsoy 2011).

Yıldırım (2010) can students learn to think critically while adequate preparation and active participation in such activities as case studies and group discussions. Spoon-feeding the course content with a course format may be popular with students, but it certainly does not encourage critical thinking. Courses may be effective means to foster critical thinking if instructors also utulize open-ended questions and encourage the students to ask questions. Reading assignments have also been used to stimulate critical thinling. Instructors have asked students to summarize the main points, identify implications for change, propose counter-arguments, analyze the strengths and weaknesses of articles, and identify the author's beliefs and assumptions. Other educators have developed creative means to help students critically evaluate what they have read. They have asked students to respond to articles as if they were a member of the population being discussed, or to prepare a visual or artistic representation of the subject matter. Asking students to critically analyze written material inthis way helps students to become more disciplined in their thinking habits (Brigham, 1993; Fopma-Loy & Ulrich, 1999; Hickman, 19993; Lemire, 2002; Powers, 1999; Youngblood & Beitz, 2001).

**Multiple Choice Examinations:** Multiple choice examinations have long been used to assess students' learning, but recently they have also been used to develop critical thinking ability. However, it is the instructor who writes the questions. Critical thinking is enhanced when the theoretical basis for each question is discussed in class. A rationale should be provided for each choice. Questions should be difficult enough to encourage discrimination between seemingly similar responses. Each choice should be plausible enough to require the student to prioritize and select the best answer. Multiple choice questions must be written at or above the students' cognitive level. Each question should require multiple level of abstraction in order to arrive at the correct answer. Questions written at the knowledge or comprehension level do not promote critical thinking. They encourage memorization and basic understanding. Instead, questions should foster the students' ability to apply, analyze, synthesize and evaluate. Questions ideally should relate to clinical situations, and they should help the students make the connection between theoretical concepts and clinical practice (Morrison & Free, 2001; Youngblood & Beitz, 2001).

**Case Studies:** If nurse educators are going to require that learners become critical thinkers, they must help them acquire the skill. Nurse educators often use case studies to promote critical thinking and thorough exploration of nursing situations. Case examples are sometimes drawn from the actual real life experience of the instructors, or cases may be manufactured with the intent of simulating a real patient situation. In any event, the purpose of case studies is to encourage students to translate fctural knowledge from the classroom into clinical know how. Case studies are complex and should require multiple alternative solutions. They should demonstrate that conflicting therapies are to be expected in patient care. The goal of case studies is to help studies is to help students see complex nursing problems from multiple perspectives. Students may be tempted to base their actions on emotions instead of logic. (Chenoweth, 1997; Malloy & DeNatale, 2001; Youngblood & Beitz, 2001; Yıldırım, & Özsoy 2011).

**Clinical Teaching Methods:** Nursing research has not clearly demonstrated the best methods for teaching critical thinking. Experiential learning in the clinical setting encourages students to process and integrate what they have learned in the classroom, and organize that knowledge in such a way as to be useful in actual patient care situations.

Clinical nursing problems provide wonderful opportunities for critical thinking, but nurses in the clinical arena must be able to think clearly and quickly. Nursing scholars have asserted that in the clinical setting, it is often appropriate to expect students to arrive at the one correct answer, while others prefer their students to become comfortable with the unknowns of nursing care. Students have little time for reflection and critical thinking when the patient's condition is rapidly deteriorating. (Hickman, 1993; Ironside, 2000; Johannsson & Wertenberger, 1994; Lemire, 2002).

**Clinical Logs:** Students are often required to keep a clinical log, or written record of their clinical experiences. These logs are simply records of how many patients a student has seen and what types of clinical experiences they have had. Logs can also be used to facilitate critical thinking, especially if the students explore the thinking processes that led to specific nursing decisions. The students should be asked to consider why they decided on a particular course of action. Logs might also be used to encourage students to critically evaluate their own thought processes and actions. Students could discuss incidents in which they were dissatisfied with how they handled a situation. Students may also use clinical logs to answer theoretical questions posed by instructors concerning some pertinent aspect of clinical practice. Logs may be especially valuable if students share their clinical reasoning with their instructors and each other (Lemire, 2002; Martin, 1996; Mastrian & McGonigle, 1999; Youngblood & Beitz, 2001).

**Linking Theory with Practice:** Nursing students must use their clinical time to master clinical skills and become proficient at a variety of nursing procedures. Nursing students are often preoccupied with learning technical skills, such as how to give injections. It is up to clinical nursing instructors to remind students that the clinical experience is also a time for improving thinking skills. Brock & Butts (1998) set objectives for each level of the clinical nursing experience. They asked students to devise a research question associated with nursing problems they had encountered in each clinical level. Students were expected to be familiar with current nursing literature and utilize research findings to improve patient care. Nursing theory is often considered of little practical use among nursing students. They must learn to see the connection between abstract theory concerning what we believe, and actual observations we make concerning real patients. Linking research with clinical practice helps students associate nursing theory, research, and critical thinking with real life nursing actions (Yıldırım, Özkahraman 2011b; Yıldırım, & Özkahraman, 2011d).

**Student-Led Rounds:** Nurse educators can enhance students' critical thinking skills by allowing students to lead clinical rounds. The students must learn to gather, organize and prioritize appropriate assessment data, distinguish between relevant and irrelevant data, and develop nursing diagnoses in order to effectively present and defend their findings to their peers. Critical thinking is further enhanced when their peers offer critiques of the presenting students' verbal reports. Students learn to tolerate multiple perspectives and to analyze and defend their own assumptions through open discussion with others. Student led rounds necessitate prioritizing data and patient care, summarizing salient points, gathering, clarifying and analyzing the meaning of data, and distinguishing facts from inferences (Sedlak & Doheny, 1998).

**Faculty Role Model:** Nurse educators have traditionally taught critical thinking by providing students with written exercises such as care maps or care plans, case studies, group discussions or problem-solving exercises. There is little evidence as to whether or not these methods are effective. There are alternatives to traditional methods. Clinical nursing courses have small faculty to student ratios. This allows faculty to model critical thinking and to direct students to situations that will develop their critical thinking skills. Faculty mentors should not quiz students, or expect them to have all the answers ahead of time, but instead, provide students with opportunities to think on their feet. Nursing students learn by experience and observation of how seasoned nurses think in real clinical situations. Educators should focus less on devising critical thinking strategies, and spend more time helping students think through the clinical experiences they encounter (Chenoweth, 1997; Facione & Facione, 1996; Ironside, 2000; Powers, 1999).

**Simulated Clinical Experiences:** The recent decline in hospitalized patients and the trend toward home care has made it increasingly difficult to find clinical sites for nursing students. Educators seek to remedy this by decreasing clinical hours and supplementing with case studies, computer-assisted instruction, and interactive videos. Practice laboratories and computer aided nursing situations may be one way to teach critical thinking in a simulated, safe, clinical environment. Nursing students can take the time they need for reflection without endangering patients.

Nurse educators have used simulated patient encounters to teach planning, decision making, and problem solving. Simulations have also been used to evaluate students' clinical knowledge and critical thinking ability. Little research has been done to determine the impact of decreased clinical hours on students' critical thinking skills, but several researchers have asserted that simulated experiences are at least as effective, and that students enjoy them. (Hickman, 1993; Johannsson & Wertenberger, 1994; Malloy & DeNatale, 2001; Mastrian & McGonigle, 1999; Russell & Pepa, 1998).

### ***Barriers to Teaching Critical Thinking In Nursing Students***

Little was found in the literature about obstacles nursing students face as they try to develop the skill of critical thinking, but several concepts that affect an individual's ability to think critically have been identified by Miller & Babcock (1996), Bandman & Bandman (1995). Nurses use the tenets of critical thinking that include decision making, inferences, reasoning, and reflection in conjunction with the nursing process, a method of scientific reasoning to plan care for sick individuals and to teach society ways of maintaining a healthy life style. Nurses, however, need to identify what is concrete information gained through effective data collection, and what is cursory information gained through feelings. Critical thinking enables nurses to discriminate between viable sources of data collection as they attempt to gain information about a patient's condition. A combination of objective and subjective data will give the nurse the information needed to make sound decisions. The lack of an accepted definition for critical thinking in nursing, poses challenges for nurses. Nurses are unsure of what critical thinking is as it applies to nursing practice and therefore they have difficulty in applying critical thinking standards to their practice (Scheffer & Rubenfeld, 2000). Critical thinking in education is applied to generalized situations and nursing practice deals with specific situations (Miller & Babcock, 1996). Nurses must learn to tailor the cognitive and affective skills of critical thinking as described by Faccione et al. (1994) to their practice.

While critical thinking ability is a crucial outcome of nursing education, the literature does not demonstrate that nursing graduates are critical thinkers. Nurse educators have identified several potential obstacles in their attempts to teach critical thinking. Systems problems, such as lack of faculty time to develop appropriate teaching strategies, have been cited as interfering with teaching critical thinking. Educators struggle with how to balance content with critical reflection. Student attitudes, such as resistance to active learning, and focus on grades rather than learning, also impair instructors in their attempts to teach critical thinking. Good students have been rewarded since childhood for arriving at the correct answers and they may be reluctant to give up those rewards. Students are typically comfortable with didactic, content focused learning, and the shift to a critical paradigm could be somewhat threatening (Brock & Butts, 1998; Fopma-Loy & Ulrich, 1999; Ironside, 2000; Mastrian & McGonigle, 1999; Yildirim, 2010).

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