



Assessment of critical thinking: A Delphi study

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SUMMARY

Nurse educators are responsible for preparing nurses who critically analyze patient information and provide meaningful interventions in today's complex health care system. By using the Delphi research method, this study, utilized the specialized and experiential knowledge of Certified Nurse Educators. This original Delphi research study asked Certified Nurse Educators how to assess the critical-thinking ability of nursing students in the clinical setting. The results showed that nurse educators need time, during the clinical experience, to accurately assess each individual nursing student. This study demonstrated the need for extended student clinical time, and a variety of clinical learning assessment tools.

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Introduction

Nurse educators have a vast knowledge base and understand the complexities of learning and assessment process; the Delphi method links into this knowledge base. The Delphi method uses an expert panel to answer the research question. In 2000, Scheffer and Rubenfeld conducted a Delphi study to determine the best and most acceptable definition of critical-thinking in nursing. They stated that "critical-thinking is an essential component of professional accountability and quality nursing care" (para 45). Similar to [Facione's \(1990\)](#) findings, Scheffer and Rubenfeld concluded that nursing students need to exhibit habits of the mind as well as cognitive skills. Habits of the mind include: confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance and reflection. The cognitive skills includes are: skills of analyzing, applying standards, discriminating, information seeking, logical reasoning, and predicting and transforming knowledge ([Scheffer and Rubenfeld, 2000](#)).

Critical-thinking has been identified as an essential component to provide safe, competent patient care. Registered nurse graduates, beginning their careers and nursing practice, are required to think critically. Clinical education is the ideal time to develop and assess critical-thinking. The ability to use critical-thinking skills has been linked to the success of graduate nurses in their transition to clinical practice; however, according to [Del Bueno \(2005\)](#), "only 35% of new RN graduates" (para. 1) are prepared to meet entry-level employer expectations for critical-thinking.

Nursing Education

Nursing education consisted of two types of learning, didactic and pragmatic application. Didactic education is related to nursing concepts and theory and usually occurs in the classroom setting. The theoretical basis of critical-thinking education starts in the classroom, while the application of critical-thinking or the transfer of knowledge to nursing practice occurs in the clinical learning environment. Pragmatic instruction is related to the application of nursing skills and occurs in a variety of clinical settings. Clinical settings include all areas where nurses provide direct patient care, including hospitals, long-term care facilities, home care and community health. Before they graduate, nursing students must demonstrate mastery of the related skills and dispositions of critical-thinking, in both the classroom and clinical settings.

Literature Review

Thinking, the process of thinking, and critical thought has its theoretical foundation with Socrates, the Greek philosopher. Much of the early work on critical-thinking defining critical-thinking was focused on defining the concept ([Dewey, 1938](#); [Ennis, 1962](#); [Watson and Glaser, 1980](#); [Facione, 1990](#); [Paul and Elder, 2006, 2007](#)). [Facione's \(1990\)](#) Delphi Report was a turning point in critical-thinking research. The results of this study outlined a list of dispositions towards critical-thinking. These dispositions include approaches that are inquisitive, systematic, judicious, analytical, truth-seeking, open-minded, and confident in reasoning. The core critical-thinking skills were found to be analysis, interpretation, self-regulation, inference, explanation, and evaluation.

Nursing education continues to work to improve and accommodate the changing need of the nursing student and the healthcare industry. The educational theory of Constructivism and Situational Learning allows learning to occur as an active process at the student's current

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level of knowledge and experience (Brandon and All, 2010; Wiggins, 1998; Martin, 2002). Research conducted by Benner et al. (2010), for the Carnegie Foundation, indicates that no single assessment method can provide the complete assessment picture of student learning. Following this assumption, a complex concept such as critical-thinking would need a multi-dimensional approach to assessment.

The clinical setting is an educational environment in a health care facility with direct patient care that requires unique instructional and assessment strategies. Students learn to apply their nursing theoretical knowledge based on pragmatic instruction in a social setting (Brown et al., 1989; Sharif and Masoumi, 2005; Brandon and All, 2010). Direct patient care allows student nurses to apply and transfer learning from a theoretical, abstract level to real-life situations with uniquely human responses. In this unique learning environment, how is the assessment of student knowledge and critical-thinking assessed? McDonald (2007) states that educators have an ethical and legal responsibility to accurately assess the student's level of competency in any essential area. Critical-thinking and clinical judgments are essential areas.

Allen et al. (2004) showed that there is a low correlation between critical-thinking in the clinical setting and performance on standardized examinations. However, the most frequently used methods for assessing critical thinking are nursing process papers or multiple-choice examinations. There are significant problems assessing critical-thinking in this way. For example, specific physical dispositions associated with critical-thinking, such as body position of the student, cannot be demonstrated in a linear, step-by-step paper. Written assessment methods do not directly measure the ability of the student nurse to think on her/his feet in a clinical setting, yet they continue to be used. Problems associated with patient care do not present themselves in a multiple-choice format with time for reflection and changing answers. A variety of assessment methods increases the dimension of learning assessment, but current literature does not show one method to be more accurate or reliable than the other. The only consistent factor is that critical-thinking tends to improve the longer a student is in the educational system; as the nursing student matured their ability to think critically increases (Angel et al., 2000; Neary, 2001; Brill, 2001; Ironside, 2005; Shin et al., 2006; Lyons, 2006; Frye et al., 1999; Brown et al., 2001).

There are a lack of instruments to assess critical-thinking that are designed as performance assessments and specific to nursing. For example, the Watson-Glaser Critical-thinking Appraisal (WGCTA) and the California Critical thinking Disposition Inventory (CCTDI) are instruments based on general critical-thinking skills isolated from the application of knowledge. The South Carolina Higher Education Assessment Task Force reviewed eight tools for validity and feasibility, including these. They found that the tools with more validity included performance-oriented assessment with detailed content, but there was not a single instrument that ranked high in both validity and feasibility (Fesler-Birch, 2005).

In 2010, Gezer, Kantaek and Ozturk used the (CCTDI) to determine critical-thinking levels. The results showed low-level scores and indicated that careful planning in education would benefit the level of critical-thinking. Various studies found that WGCTA and the CCTDT are specific to nursing (Beckie et al., 2001; Brunt, 2005; Gezer et al., 2010; Fesler-Birch, 2005). Allen et al. (2004) state that critical-thinking remains difficult to teach and assess. Tanner (2005, 2006) notes that past assessment tools have not kept pace with the knowledge and definitions of critical-thinking in nursing.

More recently, high definition simulation (HDS) has become part of the standard educational learning methods. HDS is the use of a manikin with a computer program that simulates actual patient and nurse interactions in a nursing laboratory. Many nursing educational programs have added HDS as a component or replacement for actual live patient clinicals. The National Council State Boards of Nursing (NCSBN) has reviewed the use of simulation and clinical judgment or critical-thinking and its use as an assessment tool for nursing competency. Currently, NCSBN is conducting a National Simulation Study to “determine

the prevalence of simulation and its use as a substitute for clinical hours” (Kardong-Edgren et al., 2012, para. 4).

There have been multiple studies related to the effectiveness of HDS in preparing new nurses for critical-thinking in real-life situations. Brown and Chronister (2009); Linder and Pulsipher (2008); Lapkin et al. (2010); Spencer, 2011; and Oldenburg et al. (2012) examined simulation and pre-licensure education programs. Oldenburg, Maney and Plonczynski, compared traditional first semester clinicals with simulations to second-semester students. Their results showed that the initial simulation experience provided students with confidence but less in the second year students. Spencer's (2011) dissertation showed that there was no statistical significance in the level of critical-thinking related to a simulated learning experience. HDS plays a large role in the clinical education and training of new nurses; however, this study examined assessment of critical-thinking in a direct-patient-care clinical setting. An area for future research would examine if HDS better prepares student nurses for providing patient-centered clinical setting.

Methodology

The design for this study was based on the theory of holistic education, social learning theory and situated-cognition learning theory. Holistic education theory advocates for education that meets all the students' needs and learning styles; or considering all aspects of each student. Relationships built through educational experiences allow nursing students to learn from each other in a specific social learning setting; the inpatient clinical setting.

This study examined the assessment of critical-thinking in the clinical-education environment or areas with direct patient care utilizing the Delphi method. Since the quality of research and the results of a Delphi study are directly linked to the level of knowledge of the participants, specific criteria for membership of this panel were developed. The expert panel member was defined as a person who has extensive knowledge and/or experience in A) nursing practice, B) nursing education, or C) assessment of nursing student learning. Other essential criteria for panel membership included a willingness to share expertise and a belief in the importance of developing critical-thinking assessment methods. Potential members for the panel were recruited from The National League for Nursing's published list of Certified Nurse Educators (CNE) and represented different regions throughout the United States.

In addition to CNE, the final participants all had a minimum of five years of experience in educating nurses, and a master's degree in the field. Many of the participants had other advanced attributes, including a doctorate in nursing science, a doctorate of philosophy, other advanced degrees in multiple fields, a medical social worker's license, a certificate for online instruction and a doctorate of education. Participants included a certified pediatric nurse practitioner, an advanced registered nurse practitioner, professors, and a dean of Nursing. Many clinical instructors do not have the level of knowledge of these experts. By participating in this study, the experts shared their knowledge and experience.

A total of three rounds of surveys were used. Participants were given ten days to complete the surveys. The initial survey was developed from themes compiled as a result of a literature review. The themes were presented to the panel as open-ended questions. The objectives for round one were: 1) to determine a base of assessment knowledge and positions regarding critical-thinking; 2) to establish common threads or concepts for the development of rounds two and three survey questions. Once returned, the surveys were carefully reviewed and evaluated for consistent threads or data clusters. The threads were categorized into topic areas using themes and codes. The survey questions for rounds two and three were developed from these themes. The surveys were analyzed and data condensed until the predetermined, operationally defined level of consensus of 80% agreement among expert panel members was reached. Common themes were identified and additional rounds of surveys were conducted using a Likert scale until a consensus was reached by the panel of experts. The qualitative questions followed

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