Scholarly Paper on Critical Thinking

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Section I: Review of the Literature

Critical thinking is a concept that is imperative to a nurse’s education (Anderson & Tredway, 2009) (Banning, 2006) (Chang, et. al., 2011) (Drennan, 2010). It is a central component in undergraduate as well as graduate curriculums (Daly, 1998) (NLN, 2008) (Sheffer & Rubenfeld, 2000). Faculty and clinicians strive to cultivate such in nursing students and new nurses in the classroom as well as clinical setting. Researchers have focused on methods which refine and develop critical thinking in dual settings such as simulation, problem-based learning, case study, gaming and reflection as well as their associated evaluative methods (Beyer, 2010) (Billings & Halstead, 2009) (NLN, 2008).

The definition of critical thinking is abstract and multitudinous. Scientists and scholars within the field and beyond have strived to formulate a definition for this concept (Chang, et. al., 2011) (Facione, et. al., 1994) (Romeo, 2010) (Scheffer & Rubenfeld, 2000). Ancient Greek philosophers such as Socrates and Aristotle encouraged early forms of critical thinking and reflection upon ones ideas (Daly, 1998). In the 1900’s John Dewey, known for his work in pragmatism, supported experimental testing to form new knowledge (Daly, 1998) (Simpson & Courtney, 2002). In general, the literature supports critical thinking encompassing the concepts of problem solving, inference, evaluative and reflective thinking in a purposeful manner (Chang, et. al, 2011) (Daly, 1998) (Facione, 1990) (Fowler, 1998) (Scheffer & Rubenfeld, 2000) (Simpson & Courtney, 2002).

Critical thinking is thought of by some as a disposition, propensity or a “composite of cognitive abilities” (Daly, 1998) (Facione, et. al., 1994) (Simpson & Courtney, 2002) (Watson-Glasser, 1980). This sentiment has been shared with other scholars who believe critical thinking
is related to one’s constant inquiry, reconsidering one’s thought processes and the propensity to be a lifelong learner (Facione, 1991) (Romeo, 2010) (Scheffer & Rubenfeld, 2000) (Tanner, 1997). Certain research has shown that critical thinkers share affective dispositions, and are widely consistent across cultural boundaries (Yeh & Chang, 2003). The affective aspect is something often overlooked which should be emphasized in nursing, related to its caring aspect (Tanner, 1997).

Researchers agree that critical thinking is an essential factor in clinical nursing competence (Chang, et. al., 2011) (Fowler, 1998) (Banning, 2006). Additionally, The National League of Nursing requires critical thinking to be integrated into the curriculum in order for a nursing program to receive accreditation (NLN, 1992). There are many reasons why critical thinking is considered to be so essential in nursing education. Clinical practice environment and patient populations grow increasingly more complex, resulting in a need for more critical thinking in the nursing field (Chang, et. al, 2011) (Jones & Brown, 1991). Daly (1998) proposes that nursing is unique in that it deals with the “health and health deficits of human beings as complex holistic organisms” (p. 329). The paradigm shift away from positivistic and behaviorist methods have also sparked interest in critical thinking cultivation (Bevis, 1993) (Daly, 1998). Critical thinking skills in combination with experience distinguish an expert clinician from a novice (Chang, et. al., 2011) (Fowler, 1998). High level critical thinking has been shown as a predictor of NCLEX success and clinical competence (Chang, et. al., 2011) (Romeo, 2010). NCLEX scores are written using the analysis and application scores of Bloom’s Taxonomy, according to the National State Boards of Nursing (Romeo, 2011). Therefore, in order for successful completion of the exam, a student must possess critical thinking skills (Romeo, 2010).
Multiple methods have been proposed to foster students’ critical thinking skills. According to Billings & Halstead, “critical thinking and the shift from teaching to learning have assumed greater emphasis in design of the learning experiences” (2009, p.257). Strategies to promote critical thinking include reflection, Socratic questioning, concept mapping, thinking aloud (Fowler, 1998). Strategies to promote critical thinking in both the clinical and classroom settings have been explored (Simpson & Courtney, 2002). In particular, there has been an increase in methods which stimulate critical thinking as well as technological competence (Nickless, 2011). Methods which serve both purposes include simulation and gaming. Methods will be discussed more in depth in section II.

Gaps in the literature include confusion on the nursing process as it relates to critical thinking. While some scholars consider them synonymous, others disagree and think the nursing process promotes linear thinking (Bevis, 1993) (Tanner, 1997). Additionally, the widely used evaluative method of the Watson-Glasser Thinking assessment has been criticized as not effective due to its lack of pertinence to nursing. However, although certain nursing specific tools have been developed and the WGTA continues to be used as the primary evaluative method seen in the literature.

Section II: Strategies to Promote Critical Thinking

The definition of critical thinking varies widely over disciplines and within the discipline of nursing. Scholars agree that, “a concise definition of the concept of critical thinking is one that various disciplines continue to struggle with today” (Adams, 1999) (Daly, 1998) (Romeo, 2010, p. 379) (Scheffer & Rubenfeld, 2000). The overuse of the term has caused semantic confusion and resulted in what is now an esoteric term thrown around commonly in the education
vernacular (Scheffer & Rubenfeld, 2000). In the nursing community, this has resulted in misinterpretation for the scientific method or more simple conceptualizations (Scheffer & Rubenfeld, 2000). Certain definitions have been proposed that are specific to nursing and relate similarly to the nursing process (Romeo, 2010) (Shank, 1990). At times defined as an attribute, a method or as a “disposition”, the definition of critical thinking encompasses common themes include problem solving and decision making (Fancione, et. al., 1994) (Romeo, 2010) (Simpson & Courtney, 2002). Others base beliefs of critical thinking in the realm of sound reasoning resulting in the provision of quality patient care combining practice and theory (Romeo, 2010). Often times, when discussing critical thinking in respect to nursing, the affective domain is neglected (Scheffer & Rubenfeld, 2000) (Tanner, 1997). Important concepts in nursing included in the affective domain are creativity and intuition (Sheffer & Rubenfeld, 2000).

A multidisciplinary Delphi study led by Peter Facione, an expert in the subject, in 1990 yielded this result; “We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation and inference as well as explanation of the evidential, conceptual, methodological, criteriological or contextual considerations upon which judgment is based” (p. 2). Facione & Facione also determined seven affective dispositions for critical thinkers including but not limited to, maturity, inquisitiveness, analyticity and self confidence (1992). The Watson – Glasser critical thinking tool is widely used amongst disciplines as well as in business which assesses a person’s critical thinking skills based on the assessment of five areas including, inference, recognition of assumptions, deduction, interpretation and evaluation of arguments (1980). Please refer to table 1 for additional definitions of critical thinking.

Table 1: Definitions of Critical Thinking
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<th>Definition</th>
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<td>Affective components: “confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance and reflection.” Cognitive components: “analyzing, applying standards, discriminating, information seeking, logical reasoning. Predicting and transforming knowledge”</td>
<td>(Scheffer &amp; Rubenfeld, 2000, p. 352)</td>
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<td>A composite of attitudes, knowledge and inquiry including:</td>
<td>(Watson &amp; Glasser, 1964, p.1)</td>
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<td>1) Attitudes of inquiry that involve an ability to recognize the existence of problems and an acceptance of the general need for evidence in support of what is asserted to be true. 2) Knowledge of the nature of valid inferences, abstractions, and generalizations in which the weight or accuracy of different kinds of evidence are logically determined. 3) Skills in employing and applying the above attitudes and knowledge.</td>
<td>(Bandman &amp; Bandman, 1988, p.19)</td>
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<td>“The rational explanation of ideas, inferences, assumptions, principles, arguments, conclusions, issues, statements, beliefs and actions”</td>
<td>(Bandman &amp; Bandman, 1988, p.19)</td>
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<td>“Going beyond the obvious findings to make informed, purposeful judgments”</td>
<td>(Fowler, 1998, p. 183)</td>
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Critical thinking is perhaps the most important concept in nursing education today. It has shown to be directly correlated with nursing competence (Chang, et. al, 2011) (Romeo, 2011). A nurse’s best asset at the bedside is the ability to critically think – adapt, problem solve, anticipate needs, which will ultimately improve patient outcomes and “think like a nurse” (Adams, 1999) (Beyer, 2010). Additionally, critical thinking skills are required as part of a nursing education in order to receive accreditation (O’Sullivan, et. al., 1997). Critical thinking must also be utilized in order to attain licensure by successful passage of the NCLEX-RN (Romeo, 2010).

Educators in this field in particular must teach content, psychomotor skills but also the more abstract and not nearly as easy to achieve; how to critically think (Billings & Halstead, 2009)
There has been a paradigm shift among nursing faculty to change the student teacher relationship to one that is more egalitarian in nature with the teacher serving as a facilitator of learning (Bevis, 1993). Educators are encouraged to use techniques which “promote active modes of learning” (Simpson & Courtney, 2002). Nursing educators must create active educational experiences where students are able to apply their knowledge in new and creative ways (Adams, 1999) (Romeo, 2010) (Simpson & Courtney, 2002).

Sound clinical judgment must be incorporated with critical thinking. Adams (1999) explains a scenario where a patient complains of a dry mouth, and a nurse offers him a sip of water. Although this action is appropriate, a nurse who utilizes critical thinking would assess skin turgor, IV fluids, overall intake and output, oral cavity condition and patient’s current medications for side effects (Adams, 1999). As you can see, by expanding and further analyzing the issue, the nurse can develop the most appropriate intervention by utilization of critical thinking skills (Adams, 1999).

A surprising finding from an integrative review performed by Adams (1999) is that “there is no consistent evidence that nursing education contributes to increasing the critical thinking abilities in nursing students” (p.116). According to Fowler, “nurse educators are challenged to provide more than traditional passive learning modes and, instead, to stimulate learner critical thinking” (1998, p. 185). Literature has encouraged faculty to abandon the traditional behaviorist roles of delivering information and the adoption of a collaborative relationship (Billings & Halstead, 2009). The predominant role of the educator should be that of facilitator, who guides student inquiry (Anderson & Tredway, 2009). Educators must develop creative strategies in which critical thinking is integrated in the classroom on a daily basis (Simpson & Courtney, 2002). Faculty will need to consider alternative methods of course design which are
intended to facilitate critical thinking, such as a problem based thinking method or backward design (Anderson & Tredway, 2009). Perhaps faculty can consider more student-lead paradigms of education such as constructivism in which the learner constructs new knowledge from meaningful experiences (Billings & Halstead, 2009). Evidence based educational methods which promote critical thinking should be utilized, however faculty members often times have difficulty integrating these into the curriculum (O’Sullivan, et. al. 1997). Another study by Schaefer & Zygmont showed that faculty often described their courses as student-centered although they remain mostly faculty centered, suggesting difficulty with implementation (2003).

As mentioned earlier, Facione et. al. (1994) identified certain dispositions of critical thinkers. Certain attributes such as self confidence, inquisitiveness and maturity place responsibility for learning on the learner and demand an active, engaged participant for the proper outcome. Perhaps an obvious consideration, the student must actively participate in learning in order to receive the full outcomes of educational experiences designed to evoke critical thinking (Beyer, 2010) (Billings & Halstead, 2009) (Simpson & Courtney, 2002). Students must consistently practice critical thinking skills in order for them to be refined; critical thinking skills cannot be learned from rote memorization (Simpson & Courtney, 2002). Critical thinking involves the potential for multiple correct answers appropriate for one scenario, especially in more complex cases, which has been cited as a barrier students face in the utilization of this method (Beyer, 2010). As Fowler states, “nurse educators do not build a student’s knowledge base; nurses do it as they probe unknown areas and explore new possibilities” (1998, p.185).

Due to the call for critical thinking integration in the curriculum, research has been done on specific strategies which can develop critical thinking skills (O’Sullivan, et. al., 1997) (Simpson & Courtney, 2002). Simulation is a method seen in the literature is valuable to nursing education
because it can allow for the refinement of psychomotor skills in the absence of the clinical environment, allowing the student to focus on the application of background knowledge (NLN, 2008). Use of high fidelity mannequins allows students to refine skills transferrable to the clinical environment (Nickless, 2011). A wealth of research in the field of nursing has been done regarding simulation, and it has been shown to improve acute care competence and organizational skills (Nickless, 2011). A barrier to this method is the high cost of these mannequins and an alternative is to utilize lo-fidelity mannequins in combination with role playing (Nickless, 2011).

Gaming is another innovative method which can be utilized within the classroom. By making learning a game, it holds the learners interest and thus makes learning meaningful (Royse & Newton, 2007). Research has shown that similar to simulation, games can create virtual clinical experiences in which students can practice critical thinking and problem based learning (Royse & Newton, 2007).

Problem based learning is a method which has been shown to cultivate critical thinking in medical students as well as in nursing education (Simpson & Courtney, 2002) (William & Beattie, 2008). It utilizes a constructivist approach which promotes higher level thinking (Anderson & Tredway, 2009). In PBL, students are presented with a problem in which they assume responsibility in learning, and work in teams to formulate a solution (Anderson & Tredway, 2009). PBL is beneficial to critical thinking development due to its student-directed nature which allows autonomous integration of knowledge in a clinical setting (Williams & Beattie, 2008). Although this method can be utilized in the classroom, Williams and Beattie (2008) show that PBL is effective and frequently utilized in the undergraduate clinical setting.
despite significant barriers, which were typically related to lack of understanding about the method.

Grand rounds are another interesting hybrid of commonly used educational strategies involving case study and post conference (Lanham, 2011). Similar to other methods utilized in the clinical setting, ground rounds aims to “connect classroom learning with clinical activities” (Lanham, 2011 p. 176). The instructor facilitates rounds while students review evidence based practices and evaluate nursing care provided, which promotes critical thinking (Lanham, 2011).

Reverse case study is a method proposed by Beyer as a way to promote active learning by incorporating case study as well as concept mapping (2010). Reverse case study is performed by providing the students with a list of a patient’s home medications, and the students must formulate previous medical history, possible assessment data, nursing diagnoses and anticipated interventions from this information alone (Beyer, 2010). By utilizing this strategy, students become active participants in their learning in a collaborative environment (Beyer, 2010). Although this study lacked formal evaluation, positive remarks were given by students and faculty alike regarding the success of this method. (Beyer, 2010)

Reflective journaling or blogging can be used to, “stimulate collaborative reflection and experiential learning in emergent, asynchronous communities of practice” (Anderson, 2010 p.596). Students have an opportunity to connect theory with clinical experience promoting a personally meaningful educative experience (Anderson, 2010). Reflection is a key concept in critical thinking and supports experiential learning in the clinical setting (Langley & Brown, 2010). It is required to fully conceptualize complex situations, especially in the hurried clinical
setting (Langley & Brown, 2010). Reflection requires a level of introspection and maturity and is best suited for adult learners whom possess these qualities (Langley & Brown, 2010).

Section III: Evaluation of Methods

Critical thinking evaluation is a challenge in nursing due to the fact that the most commonly utilized assessment tool is not specific to nursing (Simpson & Courtney, 2002). A common evaluation tool used in many nursing studies is the Watson- Glasser Critical Thinking Appraisal (Chang, et. al., 2003) (Romeo, 2011). However, even studies which utilize this method of evaluation admit to its lack of relevance to clinical nursing care (Chang, et. al., 2003).

Additional tools utilized are the California Critical Thinking Skills Test and the Disposition inventory (Romeo, 2011). Certain nursing specific evaluation tools have not shown any significant results within the research reviewed (Romeo, 2011). A Delphi panel conducted by Scheffer and Rubenfeld suggest that nurses use their identified “habits of the mind” and “skills” to evaluate their practice (2000). They believe that with the formation of a common language, faculty can utilize these terms to appraise student performance (Scheffer & Rubenfeld, 2000).

In evaluating critical thinking, alternative methods such as reviewing concept maps, essays and other writing samples for evidence of critical thinking has been suggested (Simpson & Courtney, 2002). Fowler (1998) suggests that by having students tape their brainstorming sessions, they can be evaluated for evidence and accuracy of critical thinking. Perhaps a method which serves as evaluative and educational is self reflection (Lasater & Nielsen, 2009). By reflecting and critically appraising one’s own work, the student utilizes critical thinking skills. This also gives the faculty member valuable insight into the student’s thought processes, allowing for early correction if necessary (Lasater & Nielsen, 2009).
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