ABSTRACT

Background: The role of nurse educators in the development of students’ critical thinking has been overlooked despite the emphasized need for effective teaching methods. Method: An integrative review was performed to examine both quantitative and qualitative research published from 2000 to 2015 related to nurse educators’ critical thinking. Results: Many barriers and facilitators existing on individual, interpersonal, and contextual levels affected nurse educators’ critical thinking. Various tools have been used to measure nurse educators’ critical thinking. This review also highlighted the continued lack of a consensus definition of critical thinking and the limited presence of conceptual models to guide the use of critical thinking in nursing education. Conclusion: Continued examination of nurse educators’ critical thinking is needed, given the limited number of studies that have been completed. Much needs to be explored further, including conceptualizations of critical thinking and confirmation of emerging themes identified in this review. [J Nurs Educ. 2017;56(11):648-654.]

Critical thinking is a valued and highly desired skill in nursing practice (Mundy & Denham, 2008; Twibell, Ryan, & Hermiz, 2005). Entry to practice competencies emphasize that RNs demonstrate critical thinking and critical inquiry to integrate new and ever-changing knowledge, as well as advances in technology, that affect nursing practice (Canadian Council of Registered Nurse Regulators, 2012). Nursing graduates require critical thinking skills and dispositions to work effectively in acute, cognitively demanding, and rapidly changing health care systems. As a result, critical thinking is an emphasized outcome of baccalaureate nursing education (American Association of Colleges of Nursing, 2014; Canadian Association of Schools of Nursing, 2011).

A less-explored and often overlooked factor in the development of students’ critical thinking is the role and effects of nurse educators’ critical thinking and dispositions. Mangena and Chabeli (2005) maintained that “one cannot teach critical thinking if one is not a critical thinker” (p. 292). Mundy and Denham (2008) added that nurse educators represent an important variable in nursing education experiences, warranting further understanding. Yet, despite assertions that emphasize the importance of nurse educators’ critical thinking and its effect on the development of students’ critical thinking, limited research is available on this topic.

SHIFTING THE FOCUS: THE ROLE OF NURSE EDUCATORS’ CRITICAL THINKING

Since 2000, many research-based articles have been published that examine critical thinking in nursing education. Definitions of critical thinking, strategies used to foster students’ critical thinking, and the measurement of students’ critical thinking are recurrent foci in the literature. Evidence exists that authors are beginning to shift their attention from defining, teaching, and measuring critical thinking to exploring and understanding the factors and interventions that influence the development of students’ critical thinking. One such factor needing further attention, albeit a slow-growing area of interest, is nurse educators’ critical thinking.

Since 2005, some authors have pointed to the notion that nurse educators’ critical thinking is an important element in the education equation. However, the importance of nurse educators’ critical thinking has been minimized, and no articles have...
fully explored this relationship. Dickerson (2005) added that nurse educators need to begin to assess their own critical thinking abilities, be open to questions and challenges, and reflect on their own teaching styles and methods to situate themselves better in a facilitative role to help others to develop their critical thinking. Brunt (2005b) further identified that “teaching students about critical thinking is a good start, but it is not enough. They must see the concepts consistently applied by educators” (p. 261). Thus, role-modeling is one method thought to demonstrate nurse educators’ critical thinking. Other methods that develop students’ critical thinking include Socratic questioning, creating safe learning environments, and supporting educator–student relationships that facilitate nurturing dialogues (Brunt, 2005a; Potgieter, 2012; Riddell, 2007). As Walsh and Seldomridge (2006) identified, “faculty are well positioned to role model higher level thinking…but many do not make best use of this opportunity” (p. 217).

Intermediary factors influencing the development of students’ critical thinking are potentially plentiful. Researchers have predominantly focused on measuring outcomes of critical thinking to ensure program effectiveness; however, they have been slow to explore the role of nurse educators, who have an important role in the development of graduates who think critically. It follows that how nurse educators specifically use their own critical thinking in nursing education practice needs to be understood. Due to the small number of articles and the varied methodologies researchers have used to investigate this topic, an integrative review is warranted to more thoroughly understand what is known (Whittemore & Knaf1, 2005).

**INTEGRATIVE REVIEW**

To date, limited research exists measuring the effects of nurse educators’ critical thinking on the development of students’ critical thinking (Mundy & Denham, 2008). By systematically locating and analyzing available literature, the authors determined what was already known, what questions needed to be investigated, and what approaches have been most effective. Based on their applicability to nursing education, the authors used the following definitions of critical thinking and critical thinker as reference points to define the context of this review.

**Critical Thinking and Critical Thinkers**

According to Scheffer and Rubenfeld (2000):

> Critical thinking in nursing is an essential component of professional accountability and quality nursing care. Critical thinkers in nursing exhibit habits of the mind, such as 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. (p. 357)

**Nurse Educators**

*Nurse educators* are those individuals who teach nursing students in the classroom, laboratory, or clinical settings. Other terms used include *faculty members, nursing instructors, or tutors*. Nurse educators are employed by academic institutions that offer baccalaureate nursing programs for students studying to become RNs.

The two primary objectives that guided this review were:

- To systematically compile research studies published since 2000 regarding the measurement or conceptualization of nurse educators’ critical thinking. This may include how nurse educators’ critical thinking is defined or measured.
- To extrapolate and synthesize themes and research data from the studies regarding methods, analysis, and results to inform future research directions in this topic area.

The questions that guided this review were:

- How have nurse educators’ critical thinking skills or dispositions been measured or explored, as evidenced in the nursing education literature from 2000 to 2015?
- What do studies published between 2000 and 2015 examine about nurse educators’ or students’ critical thinking include regarding how critical thinking manifests in nurse educators? More specifically, what themes are evident from the completed research, what are the significant results, what definitions or frameworks form the conceptual basis for the research completed, and what is the effectiveness of different research designs that have been used?

**METHOD**

**Choice of Review Type**

According to Whittemore (2005), “systematic and rigorous methods for combining evidence in nursing research are essential for knowledge development” (p. 56). The varied nature of the nursing literature and research regarding nurse educators’ critical thinking supports the use of an integrative review format. Theoretical literature is not included in this integrative review, owing to the sparse and embedded nature of the theoretical exploration, in other articles, of nurse educators’ critical thinking. Whittemore and Knaf1 (2005) outlined that an empirical type of integrative review exists that focuses solely on quantitative studies. However, the current review goes beyond the examination of outcomes and relationships between variables. By using an integrative review approach that includes both qualitative and quantitative research studies, a more comprehensive understanding of the phenomenon is possible.

**Search Strategy**

The following databases were searched for this review:

- CINAHL® Plus with full text.
- Cochrane Database of Systematic Reviews.
- ERIC™ (1966 to the present).
- Health & Psychological Instruments.
- Medline® in process and other nonindexed citations and Medline (1950 to the present).
- Web of Science®.
- SCOPUS®.

Search terms used for searching each of the above databases were categorized into three main categories: (a) descriptors of the thinking process, including critical thinking or deep-level thinking; (b) terms associated with nursing and nursing educational contexts; and (c) identifiers for the target population of nurse educators. 

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NURSE EDUCATORS’ CRITICAL THINKING

educators, faculty members, and nursing instructors. Because of the various terms available for each of the three main categories, multiple terms were searched in each database as follows:

- Critical thinking, high* thinking, and deep* thinking
- Nursing or nurs* education
- Nurs* educator, faculty member, and nursing instructor

Some databases did not require all three categories of search terms, and the actual terms varied slightly among databases.

To retrieve literature for this review, the databases were searched as described above. In addition, the authors (a) examined Web sites specifically related or linked to critical thinking or nursing education; (b) reviewed reference lists of articles to ensure that research-based articles were not missed; (c) searched, by hand, three key nursing education journals (the Journal of Nursing Education, Issues and Innovations in Nursing Education, and Nurse Educator) to retrieve any additional articles not captured in the database and reference list searches; and (d) held discussions with local experts.

Inclusion and Exclusion Criteria

To be included in this integrative review, articles or dissertations had to be dated from 2000 to 2015; be written in the English language or have a detailed English language abstract available; be primary sources of quantitative or qualitative research; and contain a description of the research that was completed to measure or conceptualize academic nurse educators’ critical thinking definitions, skills, or dispositions, or a combination of these.

Exclusion criteria for this integrative review included non-English dissertations or articles without a detailed English abstract available, theoretical-related literature, research articles that related to nursing programs not aimed at RN education (e.g., continuing education, vocational nursing), or research not aimed exclusively at understanding nurse educators’ critical thinking.

The above inclusion and exclusion criteria were based on the need to locate literature that best answered the questions posed for this review and was published within the time frame most likely to retrieve current yet applicable articles. For example, articles published prior to 2000 would be based on research completed in earlier contexts that may not translate into current practice. The synthesized results from older articles would not be applied as readily to the current context of nursing education; therefore, they were not part of this review. To reduce publication bias in this review, dissertations were included as potential research sources, given the large number available and the trend in this field whereby dissertations are often not published, despite their valuable information and findings. Databases and hard copies of journals were searched for articles and dissertations that met the inclusion criteria. The Figure depicts the search and retrieval process.

From the search and retrieval process, many potential articles and dissertations were identified (i.e., 1,186 articles screened for an initial pool of 57 articles). Because the review was focused on a specific subset of nursing education studies (e.g., those that have nurse educator samples), it is understandable that only a few were selected. There were many theoretical articles that were retrieved but not included in this review, as well.

Data Extraction

Data were extracted from each article, including reference information (i.e., author, year, source, and title), the definition of critical thinking used, study design, sample information including sampling approach and number of participants, data collection measures, results from the study, and any additional noteworthy comments about the article or dissertation. Although blinding of those extracting the data from articles is valuable, this was not done for this review due to financial constraints. See Table A (available in the online version of this article) outlining the extracted data.

QUALITY ASSESSMENT

A quality assessment of included articles and dissertations for this review was completed, which was subsequently double checked by a co-author (J.P.-M.) for accuracy. Due to the small number of articles and dissertations located on this topic, no cut-off level of quality was used to decide whether to retain or discard the article or dissertation from the review. Instead, criteria were used to compile trends extracted from the articles and dissertations and to substantiate the need for further work on reporting research studies in this area. All quantitative and qualitative research articles and dissertations included in this review were analyzed for quality using criteria from the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement for observational studies, as well as Mays’ and Pope’s (2000) qualitative study review criteria. A combined analysis tool was used to compile the results for both types of research studies. See Table B (available in the online version of this article) outlining the main points from the quality assessment of the articles and dissertations.

RESULTS

Based on the extracted data and the quality assessment of each study, the authors offer their analysis to the guiding questions, posed at the start of this review. Question one: Over the past 15 years (2000 to current), how have nurse educators’ critical thinking skills or dispositions been measured or explored in nursing education?

Since 2000, nurse educators’ critical thinking has not been studied extensively. Only 10 studies were located for the review period; six of these studies were published in peer-reviewed journals, and four were dissertations. One of the articles was part of a dissertation; thus, the results reported in the publication and dissertation (Blondy, 2007, 2011) were counted as one study. Of note, studies included in this review that were published closer to 2000 were more focused on establishing nurse educators’ conceptions of critical thinking, whereas later studies focused on understanding how to measure nurse educators’ critical thinking. The authors of the current study explored the research designs, data collection methods, and sampling practices to help demonstrate how nurse educators’ critical thinking has been analyzed over the past 15 years. Four research studies included in this review were conducted solely in the United States, two were conducted in Canada, and one was conducted in New Zealand, as well as Thailand and the United States simultaneously.
Design and Data Collection Method

As evident in the extraction table (Table B), both quantitative and qualitative studies were identified that examined nurse educators’ critical thinking in the time period of 2000 to 2015. The quantitative studies used primarily descriptive or correlational designs. However, three of the six primarily quantitative studies used both qualitative and quantitative data gathering approaches, which points to the growing understanding that both quantitative and qualitative research methods are needed to understand nurse educators’ critical thinking. An expanding use of qualitative research methods to study nurse educators’ critical thinking also was observed. The qualitative-based research articles and dissertations included in this review used interpretive designs.

A variety of tools were used in the examined studies. The California Critical Thinking Skills Test (CCTST) and California Critical Thinking Disposition Inventory (CCTDI) were used in four of 10 identified studies. Other quantitative data collection tools included a researcher-developed survey to measure barriers to critical thinking in nurse educators (Blondy, 2007), researcher-created questionnaires to survey conceptions of critical thinking (Gordon, 2000; Goyne, 2001), a measure of research use (Profetto-McGrath, Bulmer Smith, Hugo, Patel, & Dussault, 2009), the Learning Environment Preferences (LEP) tool (Zygmont & Schaefer, 2006), and interviews (Raymond & Profetto-McGrath, 2005; Zygmont & Schaefer, 2006). The researchers who completed the qualitative studies used predominantly interviews as their data collection method. One study also used observations and document reviews (Hobus, 2008).

Sample and Sampling

Sample sizes of the included articles and dissertations ranged from one to 287 participants. However, seven of the 10 articles or dissertations reported study samples composed of fewer than 50 participants. The most popular sampling technique in the group of quantitative-based studies was one of convenience; some used purposive techniques, whereas only two studies used randomization. Reported response rates for the studies ranged from 12% to 54%, with many studies not reporting this statistic.

Question two consisted of: What do studies published from 2000 to 2015, examining nurse educators’ or students’ critical thinking, tell us about how critical thinking exists in the nurse educator population? More specifically, what themes are evident from the completed research, what are the significant results, what definitions or frameworks form the conceptual basis for the research completed, and what is the effectiveness of different research designs that have been used?

Themes

Three themes were identified from the analysis: (a) variation of critical thinking definitions, (b) a multitude of barriers and facilitators of nurse educators’ critical thinking, and (c) important contextual factors influencing critical thinking in nursing education.

Scheffer (2000) pointed out the nonuniformity of critical thinking definitions in nursing and noted that nurse educator participants infrequently cited published definitions of critical thinking. Although some researchers called for a consensus definition of critical thinking in nursing education (Jenkins, 2011), other researchers found some prefer a choice of various definitions (Raymond & Profetto-McGrath, 2005). The choice and use of critical thinking definitions underpinning the research were varied. Authors of four of the 10 articles or dissertations specified a particular definition on which they based their research. Three of the four authors who included a critical thinking definition to guide their work chose Facione’s (1990) definition. Authors of the remaining studies did not provide any rationale as to why they omitted a definition.

Some studies offered a traditional view of critical thinking, in combination with the essential nature of attitudes and dispositions (Walshw, 2004). Gordon (2000) found nurse scholars, when compared to non-nurse scholars, were less likely to agree that interpretation was a component of critical thinking and more likely to regard decision making and problem solving as similar or the same as critical thinking. In addition, participants in Goyne’s (2001) study identified intuition and subjective knowing as part of critical thinking. Goyne (2001) also identified that critical thinking could be subcategorized into purpose elements (to help in decision making, problem solving, and outcomes), knowledge elements (arising from nursing knowledge and experience), and process elements (application of both skills and dispositions). Jenkins (2011) identified the importance of cultural and geographical differences in definitions of critical thinking. Participants from Thailand identified a strong link between happiness and critical thinking, whereas those from the United States suggested decision making was a stronger component of critical thinking. The participants in
Jenkins’ (2011) study also identified that a consensus nursing definition of critical thinking would be beneficial to nursing but also posed risks such as losing the “richness of multiple perspectives” (p. 272).

In addition to the various definitions within the literature selected for the current review, authors also discussed the barriers and facilitators of critical thinking. Raymond and Profetto-McGrath (2005) identified individual factors, such as health and dispositions, aiding in one’s critical thinking. Blondy (2007) added decreased knowledge and time as additional individual barriers. Contextual barriers that decreased nurse educators’ ability to think critically included the absence of a consensus definition of critical thinking, inconsistent measurement, decreased professional development opportunities, student focus on grades (Blondy, 2007), closed environments, unsupportive leadership (Raymond & Profetto-McGrath, 2005), oppressed group behaviors, and intolerance for divergent opinions (Scheffer, 2000). Environmental factors were reported that positively influenced nurse educators’ critical thinking, including open and trusting contexts, support for creativity (Raymond & Profetto-McGrath, 2005), open leadership, comfortable contexts (Scheffer, 2000), and support for reading and writing (Raymond & Profetto-McGrath, 2005; Scheffer, 2000).

The effects of context on the actualization of critical thinking was another factor evident in the reviewed studies. Jenkins (2011) concluded that one cannot separate nursing knowledge from critical thinking in nursing. That is, the nursing context, influenced by culture, influences the definition and usage of critical thinking. Walthew (2004) further identified the fundamental importance of context, relationships, and emotions on critical thinking. An additional link between context and critical thinking was recognized by Goyne (2001), highlighting the role of nursing-specific knowledge and experience on the thinking process. The authors of the current study also found that each individual educator has an affect on the context in which critical thinking occurs. For example, Hobus (2008) identified the individual and contextual nature of critical thinking and the role that life and educational experiences have on its development. Given the unclear nature and generalizability of critical thinking skills and abilities, understanding the specific individual and contextual factors is an important step to understanding the complexity of critical thinking. By not having a consensus definition or important discussion around what definitions are applicable to nursing, how critical thinking articulates with the nursing context remains vague.

Significant Results

The results from the quantitative research studies included in this review were informative, with some notable differences and notable similarities. Researchers of the three studies that used the CCTST (Blondy, 2011; Raymond & Profetto-McGrath, 2005; Zygmont & Schaefer, 2006) found that the overall total mean score was higher in each of the studies when compared with the published norm group mean (Facione & Facione, 1994). This is understandable, given that the published norm at that time was based on college-level student scores. In addition, in each of the three studies, the analysis subscale scores demonstrated strong or almost strong for all mean scores. The results of the other CCTST subscales mean scores for all three studies were ranked moderate, with no weak subscale mean scores noted.

There was a similar ranking of subscales in two studies in which researchers used the CCTDI. In the study by Raymond and Profetto-McGrath (2005), the highest scores were achieved on the inquisitiveness subscale, whereas the lowest three subscale scores were analyticity, truthseeking, and systematicity. Profetto-McGrath et al. (2009) found the same rankings in terms of highest and lowest subscales scores. However, the order of the lower three subscales in the latter study differed slightly (i.e., systematicity, analyticity, and truthseeking) (Profetto-McGrath et al., 2009). Overall, both studies reported a CCTDI mean total score greater than 280, indicating participants’ similar overall positive inclination to think critically.

Other scales and measures in the reviewed articles included the LEP tool (Zygmont & Schaefer, 2006), a measure of research use (Profetto-McGrath et al., 2009), researcher-developed questionnaires about definitions of critical thinking (Gordon, 2000; Goyne, 2001), and a researcher-created tool to measure barriers to critical thinking (Blondy, 2007). A comparison between studies was difficult, given that none of these tools were found in more than one study. Nevertheless, some significant and insignificant correlations were reported with the use of the above measures. Blondy (2007) established a significant link between education level and the number of barriers educators experienced using a researcher-developed barrier measurement tool. Profetto-McGrath et al. (2009) established a significant link between overall critical thinking dispositions and all types of research use. In addition, Zygmont and Schaefer (2006) found a lack of correlation between the CCTST and the LEP tool used in their study. These correlations require further replication to understand their significance.

Definitions and Variation of Research Designs

There were limited definitions or conceptual frameworks included in the reviewed studies. Many studies examined how best to conceptualize critical thinking, which may have underscored the omission of a preconceived definition. The studies that did include a definition favored the one by Facione (1990), possibly because it formed the conceptual basis of both the CCTST and CCTDI, which also were used in those specific studies.

The quality of the studies also was assessed in the review. It was difficult to determine the quality of most studies, owing to the limited reporting of many details. Missing details often included the identification of the research design in either the abstract or title, lack of research questions, and limited discussion of the reliability and validity (i.e., quantitative) or credibility and fittingness (i.e., qualitative) criteria of the tools used. It is worth noting that the dissertations included as part of this review were more detailed than the articles, which may have positively skewed the results of the quality assessments.

LIMITATIONS

Limitations of this integrative review include the potential for language bias, given that this review only included articles and documents written in English. Also, the time frame chosen
(i.e., 2000 to 2015) may have excluded some additional articles and dissertations. Although articles were reviewed by two individuals, additional review from other individuals may have offered a different outcome.

**DISCUSSION AND FUTURE IMPLICATIONS**

Based on the results of this review, it is evident that the study of nurse educators’ critical thinking is still in its infancy. Given the type and number of studies completed since 2000, more research is required to understand how critical thinking exists in the nurse educator population and how it can be best studied. It is evident from this review that a mixture of qualitative and quantitative studies have been completed, yielding conceptualizations, barriers, enhancers, and complexities surrounding positive educational contexts thought to best develop students’ critical thinking. More specifically, this review pointed to some areas where research is most needed, including uncovering and testing defining concepts, exploring effective measurement methods, and understanding factors that influence nurse educators’ critical thinking in various education settings.

Research is needed to understand how critical thinking exists conceptually—specifically, how we define it as nurse educators and how we use it to improve the education of students. It is clear that the authors of the current study, whose research is included in this review, struggled with the lack of an endorsed definition of critical thinking in nursing education. Jenkins (2011) outlined that delineating a unifying language around critical thinking is a benefit to creating a consensus definition. However, Jenkins (2011) also identified that limiting the definition may limit the richness that comes with having multiple perspectives. One area that was absent from the research is an examination of specific strategies needed to mobilize nurse educators’ critical thinking. The theoretical literature in this topic area outlines many strategies that are used to foster students’ critical thinking; however, limited research exists examining what role nurse educators’ critical thinking plays in implementing teaching strategies. Given the importance of evidence-based teaching initiatives, more research in this area would add to best practice knowledge.

This review highlighted the use of various measurement tools regarding critical thinking and some possible correlating factors (e.g., barriers, learning environment preferences, research use). The most common tools used to measure critical thinking in nurse educators have been the California Critical Thinking Assessments, which have accentuated a possible pattern of higher and lower ranking subscales. Given the limited use in the nurse educator population, it is too early to conclude whether these tools are the best measures of nurse educators’ critical thinking. More research is needed to examine whether the patterns identified using the CCTST and CCTDI will continue to emerge. The completion of the California Critical Thinking Assessment tools by larger and more diverse nurse educator samples would improve understanding of nurse educators’ scores and tendencies. Qualitative studies also were captured in this review. Most of the qualitative studies were interpretive in nature and used interviews as the primary data-gathering approach. There were some important themes evident in the qualitative literature. Additional qualitative work is needed to enrich current data and offer a comparison with the quantitative findings in this area.

Overall, this review of theoretical and research-based literature offered a variety of important findings regarding what is known about nurse educators’ critical thinking and signals what further research is required. Additional work is needed to understand the real and potential factors influencing nurse educators’ critical thinking. Exploration of barriers, facilitators, and the role of context on nurse educators’ critical thinking will continue to produce important insights that will guide nurse educators’ work in the education setting. Nurse educators are a key component and variable in the development of students’ critical thinking. Although much is written about critical thinking in nursing education, further research is necessary to enhance the understanding of important factors, such as the role of nurse educators’ critical thinking.

**REFERENCES**


Blondy, L.C. (2007). A correlational study between the critical thinking skills of nursing faculty and their perceived barriers to teaching critical thinking skills to nursing students (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (UMI 328871)


<table>
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<tr>
<th>Study Authors and Type of Document</th>
<th>Guiding Definition of Critical Thinking</th>
<th>Term used for participants</th>
<th>Type of Study</th>
<th>Sample Size, Sampling Method, and Response Rate (Quantitative)</th>
<th>Data Collection Methods</th>
<th>Main Results</th>
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<tr>
<td>1a. Blondy, 2011 Publication: Western Journal of Nursing Research</td>
<td>Not specified</td>
<td>Nursing faculty members</td>
<td>Quantitative Descriptive Exploratory</td>
<td>( N = 49 ) Method: not specifically stated Response rate: 85%</td>
<td>CCTST</td>
<td>CCTST mean total score – 22.21 (3.64) - No correlation with demographic variables - No CCTST subscale findings reported</td>
</tr>
<tr>
<td>1b. Blondy, 2007 Dissertation (Unpublished)</td>
<td>Facione</td>
<td>Nursing faculty</td>
<td>Quantitative Descriptive Correlational with cross-sectional survey method</td>
<td>( N = 49 ) Method: purposive convenience Response rate: 85%</td>
<td>CCTST Barrier tool</td>
<td>- CCTST scores from highest to lowest on subscales were induction (12.59), inference (10.37), deduction (9.53), evaluation (6.53), then analysis (5.22) - Barriers scale mean was 6/20; professional barriers ranked the highest and personal barriers ranked the lowest - Potential correlation between types of barriers - Possible link between education level and number of barriers</td>
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<tr>
<td>Study</td>
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<td>Sample Size</td>
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<tr>
<td>2. Raymond &amp; Profetto-McGrath, 2005</td>
<td>Facione</td>
<td>Nurse educator</td>
<td>Descriptive Exploratory with quantitative and qualitative data-gathering methods</td>
<td>$N = 11$ for quantitative and $N = 6$ for qualitative</td>
<td>Method: not specifically stated</td>
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<td></td>
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<td>Response rate: 44% (quantitative)</td>
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<td>3. Profetto-McGrath, Bulmer Smith, Hugo, Patel, &amp; Dussault, 2009</td>
<td>Facione</td>
<td>Nurse educator</td>
<td>Quantitative Nonexperimental using cross-sectional survey data gathering methods</td>
<td>$N = 287$</td>
<td>Method: random purposive</td>
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<td>Response rate: 54%</td>
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| **4. Walthew, 2004** | Nurse educator | Qualitative Descriptive Interpretive | \( N = 12 \) | Interviews | -Participants were asked to describe critical thinking, and discuss student work demonstrative of CT
-Emerging themes were information gathering, linking theory to practice, problem solving; attitudes and dispositions; intuition and subjective knowing; contextual knowing, and connecting |
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<td><strong>Publication:</strong> Journal of Nursing Education</td>
<td>Not specified</td>
<td>Method: purposive convenience</td>
<td>Response rate: 12 of possible 18 – 67%</td>
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| **5. Zygmont & Schaefer, 2006** | Faculty | Descriptive Correlational data triangulation using qualitative and quantitative data gathering methods | \( N = 37 \) | CCTST LEP Interviews | -CCTST 19.14 (6.76) with Subscale scores: induction (11.08), inference (8.97), deduction (8.05), evaluation (5.37), analysis (4.78)  
-No faculty achieved position 5 which is indicative of CT on LEP  
-No correlation between CCTST and LEP  
-Interviews resulted in many unique descriptions of CT |
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<td><strong>Publication:</strong> Nursing Education Perspectives</td>
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<td>Method: randomized at first, then convenience due to low response rate</td>
<td>Response Rate: 12%</td>
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<td>Study</td>
<td>Year</td>
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<td>Sample Size</td>
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<td>Jenkins, 2011</td>
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<td>Journal of Nursing Education</td>
<td>Not specified</td>
<td>Qualitative Unspecified Method</td>
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<td>Gordon, 2000</td>
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<td>Journal of Nursing Education</td>
<td>Not specified</td>
<td>Quantitative Descriptive Exploratory</td>
<td>$N = 201$</td>
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<td></td>
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<td></td>
<td>Nurse educator</td>
<td>Method: randomization of schools where invitations to participate for all nurse educators were sent.</td>
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<td></td>
<td>Response rate: 51%</td>
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| **8. Hobus, 2008**  
**Dissertation (Unpublished)** | American Association of Colleges of Nurses  
**Nurse educator** | **Qualitative Interpretive**  
**Method:** purposive/convenience | **Documents**  
**Interviews**  
**Observations**  
**Journal entries**  
**Assignments**  
**Reflections** | Nurses develop their own definition of CT through experiences in their life and through their education |
|---|---|---|---|---|
| **9. Goyne, 2001**  
**Dissertation (Unpublished)** | Not specified  
**Nurse educator** | **Quantitative Descriptive, non-experimental**  
**Method:** random, proportionally stratified | **Questionnaire** | Nurse educators defined CT as having purpose elements (decision making, problem solving, outcomes), domain knowledge elements (experience and knowledge) and process elements (dispositions and skills); logical reasoning and analysis most prevalent whereas intuitive thinking, creativity and outcomes least prevalent; NEs have highest support for inquisitiveness and the least support for the inclusion of explanation as part of the definition of critical thinking |
| **10. Scheffer, 2000**  
**Dissertation (Unpublished)** | Not specified  
**Nurse educator** | **Qualitative Interpretive Case study**  
**Method:** purposive, | **Interviews** | Emerging themes:  
- Thinking is not readily reflected on from NE population  
- Dispositions of critical thinking include curiosity, love of problem solving, love of reading |
Enhancers of critical thinking include role modeling from leadership, influence of environment - NE confuse their CT with other things, including the critical thinking of students - NEs find it difficult to articulate their thinking to students and it is hard for NEs to separate thinking and doing.

Note. CCTST = California Critical Thinking Skills Test; CCTDI = California Critical Thinking Disposition Inventory; NE = nurse educator; CT = critical thinking; LEP = Learning Environment Preferences Tool.
<table>
<thead>
<tr>
<th>Study Authors and Type of Document</th>
<th>Research Design Stated in Title and/or Abstract</th>
<th>Design Clearly Identified in Document</th>
<th>Research Questions or Purpose Clear in Document</th>
<th>Setting and Population Described</th>
<th>Data Collection Methods Clearly Identified and Explained</th>
<th>Sample and Sampling Clearly Explained</th>
<th>Data Analysis Methods Described</th>
<th>Steps to Ensure Truth Value, Applicability, Consistency and Neutrality of Results</th>
<th>Limitations or Potential Bias(es) Discussed</th>
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<td>1. <strong>Blondy, 2011 Publication</strong></td>
<td>Not in either</td>
<td>Yes</td>
<td>Purpose clear</td>
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<td>2. <strong>Raymond &amp; Profetto-McGrath, 2005 Publication</strong></td>
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