



## Predicting Success for Associate Degree Nursing Students in a Concept-Based Curriculum



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### ABSTRACT

The study objective was to assess critical thinking scores, National Council Licensure Examination for Registered Nurses (NCLEX-RN) prediction scores, and NCLEX-RN pass rates for associate degree nursing (ADN) students educated with a concept-based curriculum. Results suggested that a concept-based curriculum can assist in developing critical thinking among ADN students, and critical thinking and probability of pass scores may be used as predictors for first-time NCLEX-RN passage for ADN students in a concept-based curriculum.

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### Introduction

Traditional lecture-focused curricular designs are failing to produce new graduates who can make the transition to safe and competent nurses. Although contemporary practice requirements are increasing, many novice nurses struggle with the ability to effectively critically think when making clinical decisions (Perez et al., 2015; Victor-Chmil, 2013). Today's nurse is responsible for managing an escalating census composed of patients with multifaceted health care problems, all while navigating convoluted technology platforms in a hurried and outcome-driven environment (Benner, Sutphen, Leonard, & Day, 2010; Fero, Witsberger, Wesmiller, Zullo, & Hoffman, 2009; Missen, McKenna, & Beauchamp, 2015).

Considering the intricacies associated with today's health care arena, less than desirable traits of novice nurses, and demands of the nursing workforce, a revamp of nursing education is in high demand (Accreditation Commission for Education in Nursing [ACEN], 2013; Benner et al., 2010; Institute of Medicine [IOM], 2011; National League for Nursing [NLN], 2008). Utilizing innovative nursing curricula designs, whereby students are engaged in the learning process through methods that challenge their ability to process complex clinical scenarios, is more likely to prepare them for the challenges inherent in a 21st century health care setting (Benner et al.,

2010). One curricular model possessing these qualities is a concept-based curriculum.

According to Erickson and Lanning (2014), a concept-based curriculum consolidates information by focusing on key exemplars. An essential component to a concept-based curriculum is the use of active teaching–learning strategies (Giddens, Caputi, & Rodgers, 2015), such as case studies, concept maps, problem-based learning, and simulation. Through the use of active teaching–learning strategies, students can formulate connections with information, leading to learning comprehension, critical thinking development, and the ability to decipher similar material when faced with a new experience (Erickson & Lanning, 2014). For example, a nurse educator in a beginning course may develop a case study regarding the concept of oxygenation when teaching students about the exemplar, pneumonia. As students progress through the nursing program, another nurse educator could reinforce the concept of oxygenation by assigning students to care for a simulated patient diagnosed with the exemplar, respiratory failure. Although different exemplars, both are supported by the concept of oxygenation and require similar nursing care.

A conceptual approach to teaching has been applied to prelicensure nursing education for almost a decade and continues to expand in use. However, there remains a dearth of literature analyzing outcomes related to a concept-based curriculum. This study was developed in an attempt to address this gap in the literature and support research priorities created by the IOM (2011) and NLN (2013) regarding the evaluation of innovative nursing curricular designs. The purpose of this study was to evaluate critical thinking skills

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and National Council Licensure Examination for Registered Nurses (NCLEX-RN) pass rates among associate degree nursing (ADN) students completing a concept-based curriculum. Also assessed in this study were the pass rate prediction test scores for the NCLEX-RN. The following research questions were addressed:

1. What is the difference between critical thinking program entry score and critical thinking program exit score for ADN students in a concept-based curriculum?
2. What is the relationship between critical thinking program exit score and first-time NCLEX-RN pass rates for ADN students in a concept-based curriculum?
3. What is the relationship between probability of pass score and first-time NCLEX-RN pass rates for ADN students in a concept-based curriculum?
4. What is the mean probability of pass score for first-time NCLEX-RN passage among ADN students in a concept-based curriculum?

Kolb's Experiential Learning Theory served as the underpinnings for this research study. According to Kolb (1984), students formulate knowledge through experience and by being actively engaged in the learning process. Students are able to build learning through repeated exposure to similar experiences, which improves their critical thinking skill set (Kolb, 1984). It was anticipated that, as participants in this study advanced through a concept-based curriculum, the experiential learning theory guided their knowledge acquisition and critical thinking ability. Moreover, this theory provided support in assessing and measuring the study variables. The independent variables in this study were critical thinking program exit score and probability of pass score. The outcome variable was first-time pass success on the NCLEX-RN.

## Background and Literature Review

Cumulative Index to Nursing and Allied Health Literature, Education Resources Information Center, ProQuest, and PubMed were used to search for relevant literature by applying the following subject terms: *critical thinking*, *NCLEX-RN*, *NCLEX-RN predictors*, *concept-based curriculum*, *nursing education*, and *education, nursing, associate*. To streamline the results, subject terms were combined, which yielded approximately 500 articles. A review of the titles and abstracts of these articles determined their inclusion based on relevance to the study purpose and research questions.

### Critical Thinking

Effective critical thinking skills are inextricably associated with improved patient outcomes (Robert & Petersen, 2013). However, literature overwhelmingly suggests that novice nurses are not able to exercise this crucial thought process (Benner et al., 2010; del Bueno, 2005; Fero et al., 2009; Missen et al., 2015; Perez et al., 2015). New nurses tend to design care around the completion of tasks instead of tackling patient problems with sound clinical decisions (Benner et al., 2010; Missen et al., 2015).

In a landmark study conducted by del Bueno (2005), only 35% of the sample of nearly 11,000 novice nurses were able to use critical thinking skills when managing the clinical care of simulated patients. In a similar study, Fero et al. (2009) reported that, when exposed to clinical case studies, novice nurses had statistically significant lower critical thinking scores as compared with nurses with more than 1 year of experience. In particular, marked deficits were discovered in their ability to recognize health care problems and implement prioritized nursing interventions to solve these problems (Fero et al., 2009).

Saintsing, Gibson, and Pennington (2011) attributed critical thinking deficits to the health care errors committed by novice nurses

in their study. Mishaps in medication administration were identified as the most common type of error (Saintsing et al., 2011). Comparable findings were reported by Ebright, Urden, Patterson, and Chalko (2004), with 88% of the novice nurses in their study being involved in a medication error and nearly a third of these errors related to critical thinking inadequacies. Following an integrative review of literature related to the clinical performance of nurses, Missen et al. (2015) and Perez et al. (2015) concluded that critical thinking deficits were rampant among new graduates.

Novice nurses have expressed their own concern regarding the ability to critically think. Nearly 7,500 nurses in a study conducted by Li and Kenward (2006) blamed poor critical thinking skills as the leading cause for their practice deficits. Participants in another study admitted to feeling unskilled as beginning practitioners and faulted inadequate critical thinking development exercises during nursing school as the primary reason (Etheridge, 2007). Moreover, in a study conducted by Wangenstein, Johansson, Björkström, and Nordström (2010), the use of traditional teaching methods were identified as the likely culprit for novice nurses' low critical thinking scores.

An assessment of literature regarding the critical thinking development of nursing students yielded contradictory findings. Jones and Morris (2007) examined the critical thinking ability of ADN students with the Assessment Technologies Institute (ATI) Critical Thinking Assessment (CTA). A comparison of the students' critical thinking scores at program entry and program exit did not indicate a statistically significant change. The lack of a statistically significant increase in critical thinking scores following completion of a concept-based curriculum was also suggested by the findings in two other studies, leading the researchers to advocate for the use of teaching strategies aimed at developing nursing students' critical thinking skill sets (Giddens & Gloeckner, 2005; Stewart & Dempsey, 2005).

### NCLEX-RN Predictors

The NCLEX-RN is designed to assess nursing graduates' basic competency for entry into practice (National Council of State Boards of Nursing, 2013). Each year, approximately 3,000 graduates are unsuccessful on the NCLEX-RN, which can cause emotional and financial upset for the examinees and impair the standing of the programs from which they graduated (Simon, McGinniss, & Krauss, 2013). Consequently, many schools of nursing have incorporated end-of-program standardized testing in an attempt to identify students deemed high risk of failing the NCLEX-RN (Emory, 2013; Simon et al., 2013). Because critical thinking and NCLEX-RN predictor examinations can be administered to assess a student's likelihood of passing the NCLEX-RN, literature regarding these tools was sought.

Review of the literature yielded contradictory findings when critical thinking skills were used to predict first-time pass success on the NCLEX-RN. Ukpabi (2008) reported a positive correlation between nursing students' critical thinking scores obtained by the ATI CTA and their success on the NCLEX-RN ( $p = .008$ ). Similar findings were reported by Giddens and Gloeckner (2005). Although different instruments were used in the study, a statistically significant relationship between high critical thinking scores and increased NCLEX-RN pass success ( $p = .010$ ) was noted (Giddens & Gloeckner, 2005). On the other hand, studies conducted by Stewart and Dempsey (2005) and Shirrell (2008) found no correlation between critical thinking skills and first-time pass success on the NCLEX-RN.

Although there are numerous tools designed to predict student success on the NCLEX-RN, the focus of this literature review was on the ATI registered nurse (RN) Comprehensive Predictor. In one study involving nursing students enrolled in baccalaureate and master's programs, findings indicated a statistically significant relationship ( $p \leq .001$ ) between scores on the ATI RN Comprehensive

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