VOLUME-6 | ISSUE-4 | APRIL - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

Differentiating Cognitive Essential Competencies from Behavioral Essential Competencies in Nursing Preparation Programs: Implications for Curriculum Revision

Nursing

KEYWORDS: nursing education, differentiated competencies, curriculum

Dr. William E. Johnson	Professor, College of Health Sciences, Tennessee State University, USA
Dr. Carole De Casal	Professor, Educational Leadership, Tennessee State University, USA
Dr. Eric Vogel	Professor, Department of Educational Leadership, Tennessee State University, USA
Dr. Chip Harris	Director, Center for Career and Technical Education, Tennessee State University, USA
Dr. Nicole Kendall-Arrighi	Associate Professor, Department of Teaching and Learning, Tennessee State University, USA

ABSTRACT

The nature of how competencies are defined and allocated to various cognitive domains, assimilated in clinical scenarios, and validated is a worthy topic for discussion. The authors' contend that there is the tendency for nurse educators to place too great an emphasis on the behavioral competencies without a well-defined assessment of the cognitive competencies that must be mastered in order for the nurse to perform the appropriate, differentiated behavioral or clinical response.

This article suggests that the curriculum revision process is an appropriate starting place for nursing educators to define the cognitive skills that lead to the effective application of behavioral skills; especially, when multiple problems – presented in a medical scenario – lead to multiple behavioral response options. The ability of the nurse professional to "differentiate" the cognitive skill difference that results in the selection of the proper behavioral response is the "true" test of nursing proficiency, problem solving, and professional practice.

Nursing is a scholarly profession and practice-based discipline and is built on a foundation of knowledge that reflects nursing's dual components of science and art. Nursing knowledge in conjunction with a liberal education prepares learners to enter practice with identified core competencies. (MDHE, 2016)

As a scientific discipline, nursing draws on a discrete body of knowledge that incorporates an understanding of the relationships among nurses, patients, and environments within the context of health, nursing concepts and theories, and concepts and theories derived from the basic sciences, humanities, and other disciplines. The science of nursing is applied in practice through a critical thinking framework known as the nursing process -- one that is composed of assessment, diagnosis, planning, implementation, and evaluation.

The steps of the nursing process serve as a foundation for clinical decision-making and evidence-based practice. Nurses use critical thinking to integrate objective data with knowledge gained from an assessment of the subjective experiences of patients and groups in order to apply the best available evidence and research data to the processes of diagnosis and treatment. Nurses use clinical reasoning to respond to the needs of the populations they serve and to develop strategies to support optimal outcomes that are most appropriate to the patient or situation while being mindful of resource utilization. Nurses continually evaluate the quality and effectiveness of nursing practice and seek to optimize outcomes [American Nurses Association] (ANA, 2004).

The preceding paragraphs suggest the extensive level of cognitive knowledges and clinical behaviors, which nurses are expected to effectively perform without error They must demonstrate the acquisition of these competencies, through licensure validation to substantiate that they possess the professional attributes known to significantly impact the effectiveness of the multidisciplinary health care system in general, and patient satisfaction regarding individual health care outcomes in particular. As such, many nursing programs' primary focus is targeted towards the development of professional behaviors, "patient-centered" skills, and the acquisition of broad conceptual competencies. This centralized focus on scope of practice, advocacy for patient care and safety, and collaboration and coordination of health care services, while important, help to relegate the attainment of the foundational knowledge elements that ultimately serve as the basis for interpretation, application, and critical thinking skills that comprise the technical competence of nursing practice.

There is no doubt that the acquisition of professional behaviors and technical skills is an acknowledged goal of nursing education and are desired outcomes of the practicing nurse across the health care continuum. There is equally no doubt that to maintain relevancy, standards, and quality control of the "nursing product," judicious and erudite nursing educators must be able to acknowledge and differentiate the precise core competencies that are associated with successful practicing nurses in both the cognitive (knowledge) and behavioral (application) domains that will support the growth of nursing professionalism. This process has been the subject of review by a number of groups who have advanced what they believe to be an effective and reliable framework for codifying core competencies associated with successful nursing practice (see Table 1 below).

One such group, the Oregon Consortium for Nursing Education (OCNE), identified eleven *core* competencies. These competencies were derived from an analysis of "what a nurse needs to know and be able to do". Further, they identified two domains of *core* competencies: professional competencies and nursing care competencies (OCNE, 2007). The Massachusetts Department of Education (MASS) identified ten similar essential *core* competencies in their work and subsequent document: Nurse of the Future Nursing Core Competencies (MASS, 2016). The National Council of State Boards of Nursing (NCSBN), which coordinates the licensure of the nursing profession in the United States of America, identifies four overarching domains that encompasses a total of eight essential *core* competency categories, and further differentiates eighty-three sub competencies on their National Council Licensure Exam (NCLEX, 2013).

Table 1 - Nursing Essential *Core* Competencies

OCNE	MASS	NCSBN (NCLEX)
1. Ethical Practice 2. Self-directed Learning 3. Continually updated knowledge	1. Patient-centered care 2. Professionalism 3. Informatics and technology	1. Safe and Effective Care Environment a. Management of Care b. Safety and Infection Control

4. Sound clinical judgments 5. Leadership and teamwork 6. End-of-life and acute care 7. Relationship-centered care 8. Health Promotion 9. Chronic illness management 10. Evidence based practice 11. Population-based care	4. Evidence based practice 5. Leadership 6. Systems-based practice 7. Safety 8. Communication 9. Teamwork and collaboration 10. Quality improvement	2. Health Promotion and Maintenance 3. Psychosocial Integrity 4. Physiological Integrity a. Basic Care and Comfort b. Pharmacological and Parenteral Therapies c. Reduction of Risk Potential d. Physiological Adaptation

The listing of what these groups identify as "Nursing Essential *Core* Competencies" fail to differentiate specific "cognitive" or knowledge-based competencies from what might be described as "behavioral" or application-based competencies. More particularly, they do not stipulate the essential "cognitive" competencies that are vital to clarifying exactly what knowledge, skills, and abilities must first be mastered in order to execute the application-based or "behavioral" competency. As an example, the NCSBN notes that clinical, "real world", competency encompasses the ability of a nurse to observe and gather information, recognize deviations from expected patterns, prioritize data, make sense of data, maintain a professional response demeanor, provide clear communication, execute effective interventions, perform nursing skills correctly, evaluate nursing interventions, and self-reflect for performance improvement within a culture of safety (NCSBN, 2009).

The dichotomy that exists between the levels of cognition that define for the practicing nurse the level of proficiency necessary to practice the science and art of nursing may be misinterpreted by those who credential and validate expected "core" competencies. In particular, the validation of a specific "behavioral" competency may result in an assessment that creates a "false positive" when; for example, the nurse correctly demonstrates the "behavioral" skill for a given medical situation without being required to supply the appropriate "cognitive" skill (knowledge) needed to differentiate the reasoning for the correct "behavioral" response. The nurse may, for example, be successful in accurately specifying the selection of a particular drug and the attendant process for its administration to the patient (behavioral competence) given a particular medical scenario, yet be incapable of accurately specifying what dosage of the drug is appropriate if the patient is a male weighing 250 pounds versus a female who weighs 120 pounds (cognitive competence). To what extent is the nurse "competent" in this situation?

Since the "making of a mistake" in the nursing profession may, in some instances, result in patient death, the need for comprehensive and frequent assessment of cognitive and behavioral competence is of paramount concern to nursing educators. The vitality and sustainability of two- and four-year nursing programs in many instances rests on the percentage of first time test takers who pass the National Council Licensure Examination (NCLEX). Consequently, there are no shortages of private entities that create exam preparation and study guide materials beyond the broad "core" competencies identified by the leading nursing affiliations; e.g., Kaplan, Higher Learning Technologies, Saunders, Lippincott, F. A. Davis, Chase Hassen, Kahn Academy, 4tests.com, Brilliantnurse, NCLEXtutors, and Mometrix. While the test prep vendors have focused their efforts on developing products that enhance the student's likelihood of passing a licensure exam required for entry into the profession, the professorate has yet come to a consensus regarding the best utilization of these same discrete outcomes.

As in other academic disciplines where the passing of an external licensure examination is required in order to practice one's chosen profession, the process of evaluating and validating nursing preparation programs must first assure the mastery of "cognitive" or "knowledge" competencies that sequentially lead to the higher-ordered "behavioral" or "applied" competencies. The NCSBN notes that clinical, "real world", competency encompasses the ability of a nurse to observe and gather information, recognize deviations from expected patterns, prioritize data, make sense of data, maintain a professional response demeanor, provide clear communication, execute effective interventions, perform nursing skills correctly, evaluate nursing interventions, and self-reflect for performance improvement within a culture of safety (NCSBN, 2009).

It is conjectured by the authors that nursing preparation programs must *first* accentuate and validate the specific "cognitive" skills that are discretely and directly aligned to successful "behavioral" performance. More specifically, the *key question to be asked is: Can nursing educators identify, catalog, and leverage the essential "cognitive" competencies in a manner that clearly: (1) suggests where in the nursing curriculum these competencies should be introduced, reinforced, and mastered by the student; and, (2) prescribes the cognitive competency set under which the behavioral competency is rightly defensible and warranted?*

A search of the literature resulted in a review of articles that offer conceptual frameworks that structure the relationships between cognitive and behavioral skill sets that guide nursing educators in designing ideal learning experiences for perspective nurse practitioners. Harris, Skelton, and Faucher view these nursing "core" competencies as being integrated into nursing academic programs within a broad continuum connected at various levels by what is termed "differentiated essential competencies" (DECs). (See Figure 1 below)

Figure 1 - Differentiated Essential Competencies: The Bridge Between Highly Effective Nursing Education Programs And The Nursing Practice



Adapted from Differentiated Essential Competencies, by Harris, C., Skelton, E., & Faucher Moy, D. (2011, May). Practice nurses: Implications of the DECs. In Implementing Differentiated Essential Competencies in Nursing Programs. Symposium conducted at the meeting of the Texas Board of Nursing, Round Rock, TX.

The scope and sequence of these differentiated essential competencies serve to connect various levels of education programs which (1) facilitates a smooth transition between LPN, ADN, and BSN programs, and (2) increases the likelihood that a nurse will continue his or her education. Furthermore, it is expected that the integration of these competencies may help differentiate the expected learning outcomes and allow for the validation of achievement of competencies at various educational levels. The integration of the differentiated essential competencies into practice facilitates a smooth transition for a new graduate into practice and allows academia and practice to better coordinate learning, precepting, and orienting activities. (MAC, 2014)

In 2010 the Texas Board of Nursing (TXBON) identified the sphere of nursing competencies into four essential *core* domains: scope of practice, patient care, advocacy for patient safety, and collaborator; and 25 differentiated competencies (TXBON, 2011). The cadre of

VOLUME-6 | ISSUE-4 | APRIL - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

competencies identified purportedly establishes "the framework for the preparation of safe, competent nursing graduates" by providing clarity and consistency to education outcomes. It may [also] be used by nursing programs to review curricula through content mapping for evidence that knowledge, clinical judgments and behaviors, and skills of new graduates are relevant and consistent with the education program. This document provides a foundation for the state's nursing educational programs to design seamless articulation plans for education mobility and for employers to create differentiated job descriptions for entry-level nursing practice." (p. vii, ix)

Edward M. Hundert, MD, President of Case Western Reserve University and Co-Chair of the Institute of Medicine's committee that wrote the Health Professions Education: A Bridge to Quality noted that "we owe it to our patients to change the way we are educated in order to improve quality and safety;" and, at the heart of the new Bridge to Quality report was the concept that health professionals' educational reform requires "a collective effort across all disciplines, focusing on a set of core competencies that they all embrace." (IOM, 2003). These core competencies were identified as a "set of simple, core competencies that all health clinicians should possess, regardless of their discipline, to meet the needs of the 21st-century health care system," and included following:

- ***Provide patient-centered care***—identify, respect, and care about patients' differences, values, preferences, and expressed needs; relieve pain and suffering; coordinate continuous care; listen to, clearly inform, communicate with, and educate patients; share decision making and management; and continuously advocate disease prevention, wellness, and promotion of healthy lifestyles, including a focus on population health.
- ***Work in interdisciplinary teams***—cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable.
- ***Employ evidence-based practice***—integrate best research with clinical expertise and patient values for optimum care, and participate in learning and research activities to the extent feasible.
- ***Apply quality improvement***—identify errors and hazards in care; understand and implement basic safety design principles, such as standardization and simplification; continually understand and measure quality of care in terms of structure, process, and outcomes in relation to patient and community needs; design and test interventions to change processes and systems of care, with the objective of improving quality.
- ***Utilize informatics***— communicate, manage knowledge, mitigate error, and support decision making using information technology (https://www.ncbi.nlm.nih .gov/books/NBK 221519/)

Each of the models above have elements that describe "core" nursing competency frameworks that posit appropriate technical, cognitive, and behavioral skill sets to the broader societal and corporate specifications for the production of highly proficient and eminently qualified nursing professionals. And each, to their credit, is generally able to reflect upon the conceptual efficacy of their respective framework in producing successful nursing graduates who uniformly and consistently deliver patient care with high degree of safety, concern, and purposeful action.*The apparent and underlining points that appear to be understated or missing in the discussion is the need for:*

- a clear delineation of discrete essential "cognitive" competencies that serve as foundational constructs that dictate the acquisition of more advanced essential "behavioral" competencies;
- a standardized, uniform, and universally accepted cognitive model that establishes, as an accreditation model does, the minimally documented competencies associated with the levels of cognition that are the precursor for higher-order cognitive skills such as problem solving, analysis, synthesis, and evaluation;
- the recognition that there is a dearth of precise, unambiguous, and universally understood language to quantify and qualify the precision with which essential "cognitive and behavioral" competencies are to be defined in order to create learning experiences and instructional methodologies that offer the greatest potential for competency acquisition by perspective nursing professionals;
- conceptual clarity concerning the development of a unique curriculum model that attends to the aforementioned issues.

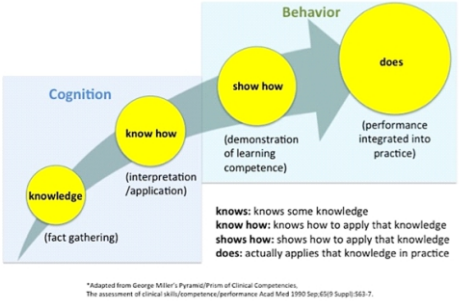
The process of correctly defining a competency framework for nursing professionals that affectively achieves a functional "theory-to-practice consensus" among nursing educators has been widely investigated. In 2009, the Royal College of Physicians and Surgeons of Canada convened an international conference of "medical educators and institutions around the world" to explore opportunities for incorporating competency-based education in residency training and across the spectrum of medical education." What transpired at this international conference was "an exploration of the future directions for preparing health care professionals through the paradigm of competency based medical education (CBME)". (Frank, et. al., 2010, p. 639).

The CBME framework implies a didactic process for a curricular strategy that identifies essential differentiated "cognitive and behavioral" competencies, and the relationships between them, that proceed to competency attainment at various levels of cognition. Moreover, the sequence and progression of students through the curriculum is a structured process that George Miller (1990) describes in his Four Stage Hierarchy of Competencies (Figure 2).

The four stages differentiate the levels in which the student progresses down the path of competency acquisition into two broad phases: cognitive and behavioral. The beginning stage, referred to as the "Knowledge" Stage, is where students know some knowledge by initiating fact gathering activities. Stage Two, the "Know How" Stage, is where the student engages in interpretation and application of the knowledge gained but now knows how and when to apply that knowledge. Collectively, these stages comprise the *cognition* phase of his model.

The second phase of the model focuses on the behavioral domain, where differentiated *behavioral* competencies are accrued in the "Show How" Stage. At this point, the student is required to demonstrate specific behavioral competencies that indicate his/her ability to "show how" to apply a previously gained cognitive competency. Being able to make larger conceptual connections between knowledge elements and experiences solicits relevant and consistent practice (or performance) in a real world setting. This also is the phase at which the "clinical" nursing experience is assessed for quality control related to consistency of applying behavioral competencies.

Figure 2 - Four Stage Hierarchy Of Competencies



*Adapted from George Miller's Pyramid/Prism of Clinical Competencies, The assessment of clinical skills/competence/performance Acad Med 1990 Sep;65(9 Suppl):S63-7.

The fourth stage of the model is the "Does" Stage. In this stage the student is able to apply the knowledge gained from the knowledge and know how stages together with the skills, broad conceptual

understandings, critical thinking skills, and practical experience from the show how stage into a professional "practice" stage, where wise thoughtful and purposeful action is exhibited consistently.

Armed with the knowledge gained through fact finding, that is George Miller's Knowledge Stage, we pursued the process in an effort to better understand the curricular challenges associated with nursing preparation programs' ability to graduate cognitively competent and behaviorally proficient nursing professionals.

Our first step in fact finding, after a through and comprehensive review of the literature, revealed 543 differentiated essential "cognitive" competencies (DECC) related to NCSB's eight "behavioral" domains, which were distributed in the following manner:

Management of Care: Properly managing a patient's care while still complying within all necessary regulations.

40 DECCs

Safety and Infection Control: Protecting patients and other health care workers from various health and environmental hazards.

60 DECCs

Health Promotion and Maintenance: Overseeing prevention and detection of patient health problems.

96 DECCs

Psychosocial Integrity: Maintaining the mental and emotional health of patients and their families.

89 DECCs

Basic Care and Comfort: Providing basic comfort and assistance to patients and assist them with the tasks of daily living.

48 DECCs

Pharmacological and Parenteral Therapies: Administering medication and measure patient vital signs.

55 DECCs

Reduction of Risk Potential: Mitigating the possibility of post-procedure complications and/or infections.

92 DECCs

Physiological Adaptations: Managing and providing care to chronically ill patients.

63 DECCs

The intent of this article has been to initiate the first of a series of papers that will stimulate discussion and produce thoughtful and deliberate responses that may improve nursing preparation programs by contemplating the following questions:

1. What are the essential competencies and outcomes for contemporary practice?
2. What are the indicators that define those competencies?
3. What are the most effective ways to document that learners and/or practitioners have achieved the required competencies?
4. Given a comprehensive list of differentiated essential "cognitive" competencies (DECCs) from academic departments and nursing preparation programs, can the DECCs be "mapped" to the individual didactic (instructional) and clinical courses in a representative BN nursing curriculum?

Additionally, questions regarding how DECCs may be applied to the design and implementation of an institution's BN nursing curriculum evaluation process might inquire as to:

1. What extent do Terminal Program Outcome Statements reflect DECCs?
2. What extent can a Curriculum Analysis Chart be constructed that aligns each cognitive (knowledge) competence with its associated behavioral (clinical) competence?
3. What extent does the clinical Evaluation Tool to reflect the four roles of the nurse?
4. Which textbooks reflect DECCs in their didactic and clinical courses?
5. What extent should DECCs be included in the Total Program Evaluation plan as a tool to assess the curriculum plan and program outcome statements?
6. What extent are DECCs reflected in course Papers, Projects, Case Studies?
7. What extent are DECCs included in Clinical Prep, Assignments, and Learning Activities?

We wish to leave with this closing thought; while the discussion just presented is one that has been "argued" in the past and currently holds interest for nurse educators operating today's nursing preparation programs, an institution's curriculum remains the central "focus" for initiating change in higher education. As such, these types of discussions are critical for all the reasons previously enumerated.

The essence of this article is to bring to the conscious level that nursing preparation programs have a tendency to be overly obsessed with Stage 4 of Miller's Hierarchy of Competencies –behavioral outcomes – with much less regard for the elemental knowledge sets or cognitive outcomes. Nursing preparation programs must graduate nurses who, with ease and confidence, are able to communicate and operate on these discrete knowledges so they may differentiate and select the only course of action, from the continuum of behavioral possibilities, that leads to effective practice.

Prudent and astute nursing educators, we feel, should direct their learned, scholarly skills in this direction first since *the demonstration of cognitive competency must precede the acquisition and subsequent demonstration of behavioral competency.*

Reference

1. American Nurses Association. (2004). Nursing scope and standards of practice. Silver Springs, MD
2. Harris, C., Skelton, E., & Faucher Moy, D. (2011, May). Practice nurses: Implications of the DECs. In Implementing Differentiated Essential Competencies in Nursing Programs. Symposium conducted at the meeting of the Texas Board of Nursing, Round Rock, TX
3. Hundert, E., & Wakefield, M. (2003). Health professions education: A bridge to quality. Retrieved from (https://www.ncbi.nlm.nih.gov/books/NBK221519/)
4. Institute of Medicine (2003). Health Professions Education: A Bridge to Quality. Washington, DC: National Academies Press.
5. Massachusetts Action Coalition: Future of Nursing (2014). The Massachusetts Nursing Core Competencies: A toolkit for implementation in education and practice settings. Retrieved from:http://www.mass.edu/nahi/documents/Toolkit-First%20Edition-May%202014-r1.pdf
6. Massachusetts Department of Higher Education Nursing Initiative Revised (2016). Massachusetts Nurse of the Future Nursing Core Competencies. Retrieved from http://www.mass.edu/nahi/documents/NOFRNCompetencies_updated_March2016.pdf
7. Miller, George (1990). The assessment of clinical skills/competence/performance. (1990) Acad Med., Vol 6, n 5, pp. 563-567.
8. NCLEX-RN Test Plan for the National Council Licensure Examination for Registered Nurses retrieved from: https://www.ncsbn.org/2013_NCLEX_RN_Test_Plan.pdf
9. National Council of State Boards of Nursing. (2009). Description of NCSBN's Transition to Practice Model. Retrieved from
10. https://www.ncsbn.org/2013_TransitiontoPractice_modules.pdf
11. Oregon Consortium for Nursing Education Competencies. (2007). Retrieved from http://www.ocne.org/students/Curriculum.html
12. Texas Board of Nursing Education Department (2011, November). Differentiated Essential Competencies DECs). Webinar led by Mary Beth Thomas Director of Nursing Practice & Education, Janice Hooper, Virginia Ayars, and Robin Caldwell, Educational Consultants