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Student Learning: The Role of Self-assessment

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Abstract

Nursing educators are challenged to discover new ways to prepare nurses for practice. Graduates must be able to accurately plan, monitor and evaluate their own beliefs, knowledge, skills and behaviors. This paper explores the role of nurse educators in student's self-assessment. It concludes with discovery of a theory of teaching that embraces formative assessment as an important teaching method that leads to increasing students' ability to self-regulate and engage in their learning. Self -assessment is one aspect of formative assessment.

In the rapidly changing complex health care environment there is a crucial demand for nurses capable of making complex decisions based upon critical thinking, sound reasoning and ethical practice. World demand for highly skilled nurses is driving nursing programs to examine and change the context, content and conduct of current teaching/learning practices. Nursing programs are changing to better prepare student nurses for the demanding roles that they will assume. Those roles require nurses who are dedicated to life long learning. An important component of life-long learning is self-assessment (Knowles, 1975). Effective nursing practice also requires well-developed critical thinking skills. Facione (1990) considers that a component of critical thinking is the ability to self-correct. Many nursing programs have not integrated self-assessment education and consistent use of student self-assessment into curricula. This paper aims to explore the nurse educator's role in student's self-assessment.

Credible research evidence that supports particular teaching/learning theories and techniques is becoming a prerequisite for making changes in nursing education as is the demand for research providing and testing evidence based outcomes. The National Council Licensure Examination-Registered Nurse (NCLEX-RN) first-time pass rate is valued as an important outcome measure by the profession for many reasons but in particular because nursing programs must meet the national norm in order to remain accredited. When creditable research links teaching/ learning techniques to increasing NCLEX first-time pass rates it is likely to motivate changes in curricula that include those teaching learning techniques.

Research that supports teaching/learning methods that improve safe nursing practice; that is effective, timely, efficient, equitable, and patient-centered care is also decidedly respected by

the nursing profession (Institute of Medicine, 2011). Particularly those strategies resulting in improving critical thinking skills related to patient safety. Safety measures that produce positive patient outcome are of keen concern to health care providers.

Literature Review

A literature search intended to find evidence of the educator's role in student's self-assessments produced the following results. The Joint Commission on Accreditation of Health care Organizational Standards (2012) has identified key quality initiative areas in both acute and non-acute care settings but does not address best practices competency protocol for health care workers self-assessment. Defined teaching strategies that imbed self-assessment as a nursing competency that is required for understanding and providing safety and quality measures was found lacking when the Quality and Safety in Nursing Education (QSEN) Advisory Board conducted a national sample survey of baccalaureate and graduate nursing program leaders (Smith, E., Cronenwett, L., & Sherwood, G., 2007). *Health Professions Education: A Bridge to Quality* (Institute of Medicine, 2003) indicates that self-assessment is warranted for individual's own performance and improvement.

The Future of Nursing: Leading Change, Advancing Health (Institute of Medicine, 2011) recommends the development of an assessment tool that would make certain that nursing students obtain a "full range of competencies to practice" at the undergraduate, postgraduate and continuing education. There is no specific recommendation for self-assessment for nursing students. Recommendation six however specifically targets the importance of lifelong learning.

Benner, Sutphen, Leonard, and Day (2011) emphatically state that nursing education needs to be transformed in order to supply the demand for competent highly skilled nurses.

These authors indicate that one of the best teaching strategies for transforming nursing education is providing opportunities for students to learn in context where provided with ample accurate performance feedback if possible. Self-assessment is one tool to this end.

A self-assessment tool, Lasater Clinical Judgment Rubric was used by 47 first year nursing students and by faculty/preceptors (Lasater, 2011). Faculty found understanding students' thinking by means of the students' self-assessments as particularly important. The rubric assists faculty and students by providing a common language related to the development of students' clinical judgment skills. Lasater also indicates that the rubric helps faculty develop feedback to students directly related to the student's clinical judgment self-assessment.

Baxter and Norman (2011) conducted a small study (n=27) with senior nursing students using pre-test and post-test measurement of learning following a simulated emergency situation. They found an inverse relationship of perceived skills to observed skills. Students who performed weakly perceived their performance as being strong while students who performed well underestimated their performance. This study provides supports the need for further research in evaluating the accuracy of nursing students' self-assessment. It also points to research of teaching/ learning methods aimed at developing nursing students' abilities to accurately self-assess.

Blanch-Hartigan (2011) conducted meta-analyses of 35 studies involving accuracy correlation of medical student's self-assessment and criterion scores. This research emphasized the importance of understanding whether the student is either underestimating or overestimating their competence. That understanding provides the educator with an opening for collaborative work with the student regarding the causes for and possible consequences of either

overestimating or underestimating their competence. The studies differed in how self-assessment accuracy was measured. Analysis of each of three measurement methods was conducted. One method measured a correlation between the self-assessment and some type of criterion score such as end of year grades. The second method, paired comparisons use of the identical self-assessment instrument at different points in time. The last measured the mean score of a group of students' self-assessments. This measurement provides information about the direction of inaccuracy of the self-assessment. Analysis of the co-relational studies showed overestimation of medical students' self-assessment of competence as a significant finding. The study however showed that medical students from countries other than the United States were less likely to overestimate their competence. A higher degree of accuracy was found when self-assessment scores were measured using objective data such as test scores as opposed to faculty evaluations. The most often overestimated competency was found to be communication competence.

Cheng, Kuo, and Lee-Hsieh (2010) reported the process of developing a tool that measures student directed learning (SDL) capabilities of nursing students. A Delphi validity method with 16 expert panel members evaluating five learning inventories resulted in the development of a new measurement instrument. The panel's revised tool was tested for construct validity using a sample of 1072 nursing students. The last stage of the process of establishing the psychometric value of the tool consisted of measuring internal consistency and reliability. The authors state that this process established the SDL as a valid and reliable tool to allow nursing students assess their learning motivation, planning and implementing, self-monitoring, and interpersonal skills.

Ibabe and Jauregizar (2010) conducted non-experimental research comparing two groups of 116 first-year psychology students in Spain. Researchers assessed the level of students' self-study engagement and whether more interactive the self-assessments leads to higher grade scores. One group voluntarily engaged in on-line self assessment which consisted of "self-testing with feedback." The control group did not engage in the on-line opportunity. The results via linear regression analysis indicate that in the group that used the self-assessment exercises, there was a correlation between frequent use and academic performance (final grade). When non-users and students using the on-line self-assessments at least once were compared, there was no significant difference in performance in the final grade when the two groups were compared. Another finding of the study using an ANOVA analysis indicated that the most motivated student used the tool the most. The study also measured meta-cognition defined as self-knowledge of own cognition and control over it. Students completed pre and post lecture self-assessments measuring various aspects of meta-cognition. At the end of the course there was a moderate relationship between students' final self-assessments of meta-cognition and grade performance.

McClellan and Soden (2004) tested the strength of using self-report as a means of improving self-regulation. Self-regulation was defined as the process of engaging in purposeful behavior in planning adapting and evaluating. Seventy-five first year undergraduate nursing students completed pre-test and post-test self-reports using the Five-Component Self Regulation instrument (Martiez-Pons). After the pre-test was administered teaching interventions aimed to increase student's reports in the different phases of self-regulations were used. Following the interventions the Five-Component Self Regulation post-test showed that students' perceived improvement in self-regulation capability.

Harris (2008) using qualitative research explored how self-assessment and reflective journaling might offer transformation of habitual thinking patterns to patterns supporting critical and reflective thinking of 30 nursing students. Harris highlights the importance of building trust and skills that leads to leveling the power between students and faculty. Harris concludes that transforming habitual thinking to high-level reflective thinking may require that nursing students receive more feedback, guidance, and critique as opposed to more practice.

Fitzpatrick (2006) engaged 60 nursing students enrolled in a community health nursing program communications course in designing their own professional and personal self-assessment criteria. This assignment was the focal point of the course. The assignment required students' reviews of professional standards; peer, tutor and mentor dialog, and student lead discussion groups. Fitzpatrick points out that a benefit of students developing their own criteria of self-assessment was that the process engaged the students emotionally in their learning. Students exhibited board examination scores for the communication module that were significantly higher than for other modules of the examination.

In 2009 Coker explored the relations between student's self-assessment and their critical thinking. Twenty-five occupational therapy (OT) students enrolled in a weeklong day camp experience for children with cerebral palsy. A pre-experience and post-experience Self-Assessment of Clinical Reflection and Reasoning (SACRR) instrument and the California Critical Thinking Skills Test (CCTST) were administered. The test scores showed significant changes in both measures following the experience. Coker concludes that the study provides support for experiential learning as a means of improving clinical reasoning and critical thinking for OT students.

A quantitative research endeavor conducted by Elizabeth Romero (2010) compared the results of twelve research studies aimed at linking NCLEX scores and critical thinking skills test scores. In three of the largest studies with sample sizes above 200 (Giddens & Gloeckner, 2005; Hoffman, 2006 & Whitehead, 2006) a positive correlation was found.

Ian Clark (2012) produced an extensive study of 199 sources of scholarly work correlating the relationships of self-efficacy, formative assessment and Self-regulated Learning. Clark's findings show evidence from multiple credible sources that the abilities to plan, monitor and evaluate before, during and after learning tasks correlate with a sense of self-efficacy and academic achievement. Self-regulated Learning (SRL) is defined as a holistic learning process that is provided in the context of a learning community of equality and mutuality. It is where students are active participants in their own formative assessments. Formative assessment is accomplished through observation and active participation with purposeful attention to SRL progression. Self-regulated Learning begins with what the learner knows to be true. Non-judgemental dialog and trusted relationships with faculty and peers are key to eliciting learners perceptions and beliefs. Through collaborative participation in a learning community faculty and students work together in challenging misconceptions, beliefs and values that hinder learning. Learning occurs with psychological development and as meta-cognitive processes evolve.

Clark cites Black and Williams (2009) definition of three categories of formative assessment. The first, formative feedback is accomplished when learners interact with their learning community and in so doing gain feedback that empowers them to set goals, monitor and evaluate their progress. Feedback that empowers provides direction. It is often provided in the form of questions that probe the learner toward deeper levels of understanding. The second category is synchronous feedback which is characterized by immediate feedback and spontaneous

dialog. Clark cites Maddox et al. (2003) and Maddox and Ing (2005) in providing evidence that immediate feedback and spontaneous dialog correlate with higher cognitive function and the ability to synthesize. The last category of formative feedback is asynchronous feedback. This occurs following a time lapse. An example of this as a teaching method is asking students to hold their questions until the end of the lecture.

Analysis

The literature search exploring the correlation between nursing students' self-assessments and standardized critical thinking test scores did not produce research findings. Further the search did not discover research findings showing a correlation between nursing students' self-assessments and NCLEX success. The literature review did uncover a compilation and analysis of twelve quantitative research studies comparing standardized critical thinking test scores and NCLEX results (Romero, 2010). In three of the four studies with sample sizes above 200 there is evidence of a positive correlation. While the sample size is small ($n=25$) and the students self selected the course; a study conducted by occupational therapy faculty revealed a positive correlation between self-assessment scores and a standardized critical thinking test. This literature search also resulted in retrieving other recent development of self-assessment instruments and research.

Notable meta-analysis by Cheng, Kuo and Lee-Hsieh (2010) shows extensive investment in the development of a self-assessment instrument intended for nursing students at every level of their nursing education. Another significant meta-analysis study of medical students' self-assessments by Blanch-Hartigan (2011) provides insight into which methods of evaluating the results of students' self-assessments will provide the most accurate and useful information. The

study stimulates interest in exploring how the direction of students' self-assessments inaccuracy could be a useful teaching tool. It also encourages research aimed at providing valuable information about the consequences of overestimation and underestimation of competencies. These large credible and reliable studies provide evidence of academic interest in health care education and to the value of pursuing the use of students' self-assessments.

When Baxter and Norman (2011) compared a small sample (n=25) of student nurses' self-assessments with faculty evaluations of the same experience it was revealed that students either overestimated or underestimated their competence. Discoveries by Lasater (2007), Fitzpatrick (2006), Harris ((2008) and McClellan and Soden (2006) suggest that nurse educators are targeting nursing students' self-assessments as a means of stimulating students' engagement and developing clinical reasoning. These reports suggest teaching methods may move students toward accuracy in their self-assessments and that teaching endeavors with the aim of helping students to accurately self-assess lead to correlated outcomes. A quantitative research study of non-health care students Ibabe and Jauregizar (2010) provides evidence of a positive correlation between meta-cognition and self-assessment.

The substantive research of Clark (2012) provides multiple sources of evidence that support Self-regulated Learning (SRL) as a theory of instruction. His research provides clear rationale and evidence in support of formative assessment teaching methods that reinforce a student's ability to accurately self-assess. Clark concludes that formative assessment underpins SRL.

Benner et al. (2008) call for a transformation in nursing education. Formative assessment imbedded SRL provides educators with rationale for optimizing students' engagement. That

engagement stimulates and hones meta-cognitive processes of planning, monitoring, and evaluating. These processes are vital to nursing competencies. Education embracing formative assessment embedded SRL appears pivotal in providing society with competent highly skilled nurses capable of solving complex problems and making transformative changes in health care. Self-regulated Learning as a guiding theory put into practice by decision makers and health care providers may provide an understanding of health through formative assessment that engages patients in developing and self-actualizing health outcomes.

Recommendations

Formative assessment that embeds Self-regulated Learning requires transformation from teacher domineered classrooms where student silence and compliance are valued to teaching/learning cultures where open dialogue in an environment of mutuality becomes the norm. The transformation requires changing beliefs and values of institution administrators and faculty members. Providing administrators and faculty members with rationale and evidence that encourages them to risk replacing traditional authoritarian methods of teaching with methods that build self-efficacy and self-regulation is the most important recommendation. Administrators and faculty members build the foundation of a learning community. When they hold a common belief that student's most benefit when they can learn through experiences that create rich formative assessment dialogue with faculty and peers self-regulation and developmental growth is stimulated in both students and faculty.

Beliefs and values result in consistent exemplifying behaviors. When faculty members model behaviors of learning through self-regulation they provide students with the opportunity to observe and emulate the culture that faculty have created. Faculty members who value formative

assessment embedded Self-regulated Learning will create teaching /learning methods with students that support meta-cognitive regulated learning.

Meta-cognitive processes of planning, monitoring and evaluating are prerequisites for teaching and research excellence. Teaching methods that produce positive outcomes result in excitement and impetus to share those results with others. Credable research showing evidence of successful teaching methods exhibits the unique qualities of the program of nursing that produces those results.

The nurse educator's role is defined by eight core competencies. (National League for Nursing, 2005) Recommendations gained from this research are correlated with those core competencies and appear in Appendix A.

Conclusion

The purpose of this paper was to explore the nurse educators' role in student's self-assessments. Data collection and analysis concludes that student's self-assessment finds grounding in formative assessment and that formative assessment is key to Self-directed Learning. Further, that understanding and teaching from the paradigm of SRL and formative assessment is the role of nurse educators dedicated to transforming nursing education.

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Appendix A

Academic Nurse Educator Core Competencies with SDL Recommendation

Core Competencies	Recommendations for Nurse Educators: Formative assessment imbedded SDL
Competency I: Facilitate Learning (p. 15)	Teach/learn from the paradigm of formative assessment imbedded SDL
Competency II: Facilitate Learner Development and Socialization (p. 17)	Role-model components of meta-cognition and formative assessment as individuals; as team members and as members of an academic community.
Competency III: Use Assessment and Evaluation Strategies (p. 18)	Develop and make transparent to students clear and concise descriptions of how they, their peers and faculty will evaluate competence. Evaluate correlations between formative assessment imbedded SDL teaching/learning methods and student's critical thinking test scores and NCLEX results.
Competency IV: Participate in Curriculum Design and Evaluation of program Outcomes (p. 19)	Use formative assessment imbedded SDL as a basis for curriculum design in nursing programs.
Competency V: Function as a Change Agent and Leader (p. 20)	Communicate the rationale for understanding and teaching from formative assessment imbedded SDL curriculum. Recommend partnering nursing students with health care providers in developing methods of applying formative assessment imbedded SDL to achieving patient identified self-actualizing health outcomes.
Competency VI: Pursue Continuous Quality Improvement in the Nurse Educators Role (p. 21)	Advocate for focused in-depth faculty development based upon teaching theory and methods that enhance learning through development of students' abilities to plan, monitor and evaluate competencies.
Competency VII: Engage in Scholarship (p. 22)	Pursue opportunities to publish the methods for and results of teaching from a formative assessment imbedded SDL curriculum.
Competency VIII: Function within the Educational Environment (p. 23)	Apply methods of formative assessment imbedded SDL that will promote teamwork among students, among faculty, and among students and faculty working together.

National League for Nursing, 2005