

Improving Student Learning Outcomes through a Collaborative Higher Education Partnership

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The aim of this article is to discuss a portfolio of interventions used to improve student outcomes in an accredited southeastern university's baccalaureate nursing program. Faculty identified three specific student-focused issues challenging student learning: (a) a steady trend of increasing student enrollment, (b) increased difficulty level of the national licensure exam, and (c) lack of a structured remediation/mentoring process to improve student skills. Increasing student enrollment challenged faculty to explore teaching strategies designed for larger class sizes, to maximize teaching effectiveness, and to use standardized exam results to inform curricular changes. A Learning Improvement Team (LIT) was strategically formed with university resources; The Biggio Center for the Enhancement of Teaching and Learning (BC), the Office of Academic Assessment (OAA), and the School of Nursing. Faculty, particularly junior-level, are taking the lead role in implementing pivotal changes in courses. Strategies include student learning outcomes improvement efforts as a departmental goal and expectation, dashboard communication for data-based curricular decisions, faculty workshops spotlighting successful classroom strategies, and interdisciplinary university partnerships. Lessons learned included recognition of the need for congruent faculty role expectations and workload, as well as awareness of the critical role of institutional support and collaboration. This successful partnership positively impacted nursing faculty, transformed departmental culture, and improved student outcomes.

Students are continually challenged to perform academically at a high level and make small behavioral changes to yield big benefits in achieving success in a nursing program. Popkess and Frey (2016) posit that nursing students may underestimate, or lack comprehension of, the numerous challenges found in the journey through nursing school. Although numerous sources recommend integrating student success programs into curricula and policies, there are barriers to sustaining these efforts. Despite due diligence and good intentions, faculty committed to improving teaching skills face many barriers. These include heavy faculty workload, faculty perception of lack of competency to remediate, inexperienced faculty, and a generalized perception of remediation being the responsibility of students rather than faculty (Jeffreys, 2012; Mee & Schreiner, 2016). Faculty need institutional and departmental support that can adequately address needs and deficiencies and provide resources to improve student learning. Nursing programs also must have a process in place to define "at-risk" parameters and identify students early to personalize a remediation plan based on the student's self-evaluation coupled with faculty support (Elder, Jacobs & Fast, 2015). Given these challenges, it is important that students have access to faculty who can facilitate resolution of problems that could interfere with student progression through undergraduate programs. In addition, faculty must have relevant support (Elder, 2015; Mills, Wilson & Bar, 2001).

Faculty members in one accredited baccalaureate nursing school program in a large southeastern university identified three specific student-focused issues challenging student learning. These included: (a) a steady trend of increasing student enrollment, (b) a

significant increased difficulty level of the National Council Licensure Exam (NCLEX-RN®) exam in Spring 2013, and (c) lack of a structured remediation/mentoring process to improve student skills. The steady trend of increasing annual student enrollment challenged faculty to employ teaching strategies designed for larger class sizes. Faculty members focused on systematic efforts to increase the level of difficulty in exams in order to align more closely with questions written at the application level of Bloom's taxonomy or above-- versus the previous lower levels of knowledge and comprehension. The purpose of this article is to discuss a portfolio of interventions used to improve student learning outcomes and remediation/mentoring process efforts in a baccalaureate nursing program. The strategies described emerged from the formation of a unique partnership focused on faculty development and academic assessment and termed the Learning Improvement Team (LIT). The project was reviewed by the University IRB and determined Not Human Subjects Research (NHSR).

Review of Literature

Montenegro and Jankowski (2017) discuss learning outcomes as a process with statements that clearly address what students should know and be able to demonstrate upon completion of a course, academic program, and use of student services. These learning outcomes statements must align with the department's goals and the mission of the university. Additionally, through carefully constructed learning outcomes statements, students must understand

departmental expectations as a guide for future career growth, thus necessitating the importance of using intentional language (Adelman, 2015; National Institute for Learning Outcomes Assessment, 2016).

Faculty must first understand major concepts of how to ensure student learning and how to motivate students to learn. Learning theories benefit faculty by offering various dimensions and dynamics when challenged with the concept of improving student learning. Butts and Rich (2018) explain learning theory's foundations in psychology and ethics regarding how learning occurs. Student learning is complex and occurs in individual courses, general education core courses, clinical experiences, and student life. While there exists an abundance of literature to support faculty employing multiple teaching strategies to meet the needs of individual student learning styles, students should be encouraged to seek, develop, and practice alternate ways of learning (Lown, & Hawkins, 2017; Revell & McCurry, 2010).

There are many tools and techniques used by nursing faculty to identify gaps in student knowledge, reinforce learning, and improve standardized examination scores. There are many ways student learning is assessed, and among these are adaptive quizzing and computerized testing with remediation which provide baseline data that help faculty gauge student preparedness and readiness for additional content. There is an ever-growing body of literature on various strategies employed by faculty to increase the likelihood that students will pass the NCLEX-RN, the gateway to nursing practice, on the first attempt. In a retrospective study of 761 nursing students from one rural, public state university, Palmer, Shanty, Labant, and Rossiter (2017) reported that a significantly high number of students reached the established program benchmark when the answers and rationale feature was turned off in practice assessment exams within several courses. However, students had the option to utilize the review topic feature, which was found to be more beneficial to student success. Faculty can readily translate this strategy to structured NCLEX-RN preparation activities which would most likely be of benefit to students as they prepare for the exam. Additionally, establishing solid baseline data enables programs to chart how well students learn over time and informs curricular changes, which contribute to learning improvement for students in the program, as well as for the program itself (Maki, 2002).

Blozen (2017) incorporated semi-structured interviews in a qualitative study to identify factors that facilitate and inhibit student success in an accelerated nursing program and the pathway to NCLEX-RN success. Strategies employed included practicing NCLEX-RN style questions, clinical experiences, faculty support, and a review course. Student

participants reported that the most helpful strategy leading to success was answering NCLEX-RN style questions. To a lesser extent, clinical experiences and family, faculty, and peer support contributed to passing the exam. The relationship between critical thinking skills as a predictor of NCLEX-RN success has been explored a limited number of times (Facione & Facione, 1997; Giddens & Gloeckner, 2005; Romeo, 2010; Shirrell, 2008). Kaddoura, Van Dyke and Yang (2017) gathered data from one accelerated nursing program for a retrospective, ex post facto descriptive study. Entry and exit Health Education Systems Incorporated (HESI) critical thinking test (CT) scores of 110 accelerated students were analyzed. Findings indicated that entry and exit critical thinking skills scores were significant predictors of first-time successful pass rates.

Whereas the role of faculty members is crucial in course design, writing learning objectives, and considering proper assessment of student learning, there must be accountability from both faculty and higher education leadership to sustain efforts (Liu, Bridgeman & Adler, 2012). Specific principles for effective assessment include embedding assessment into institutional processes, securing support from administrative leadership, making resources available for faculty while supporting the professional development of faculty and staff members, providing a vision for assessment, encouraging space for discussion and collaboration, engaging ownership of assessment, and sharing information widely regarding assessment. (Baker, Jankowski, Provezis & Kinzie, 2012). The role of administrative support to student success is critical, especially in the addressing of motivational problems of faculty, ensuring of adequate resources affecting faculty workload, and "buy-in" of faculty to student learning assessment strategies. In higher education there must be clear goals and continual work toward improving results. Factors affecting faculty members' motivation include increasing confidence in teaching ability and assessment practices; removing unnecessary policies, procedures, or barriers; and supporting the development of faculty's strong interest value (Liu et al., 2012; Sujitparapitaya, 2014). Hutchings (2010) addresses challenges in achieving faculty involvement. To promote faculty involvement, institutional leadership must provide numerous ways to align assessment with the scholarly work of faculty, incorporate assessment into the regular work of teaching and learning, create a safe and sustained place for faculty development, and create spaces and occasions for constructive assessment conversation and action.

The Learning Improvement Team

Maki (2002) addresses the importance of assessment becoming a collective means whereby colleagues discover

the fit between institutional or programmatic expectations for student achievement. Fortunately, the Learning Improvement Team was strategically in place at the institutional level and included The Biggio Center for the Enhancement of Teaching and Learning (BC) and the Office of Academic Assessment (OAA). The combined efforts and synergy provided collaborative resources to the Nursing School to offer targeted teaching and learning support via the LIT initiative. Additionally, the School of Nursing is among six other university departments/schools that are currently participating in a targeted process aimed at improving student learning unique to departmental goals. The LIT initiative leveraged a collaborative Learning Improvement Model (Fulcher, Good, Coleman, & Smith, 2014) to focus faculty, educational developers, and assessment professionals on student learning improvement. Over a six-month period, the collaboration team focused on impacting one programmatic student learning outcome. To help facilitate choosing the learning outcome, faculty development and academic assessment professionals held three meetings for a total of approximately six hours of interaction, with the School of Nursing’s leadership team to investigate existing learning outcome data, discuss aspirational goals for student learning, and plan interactions with larger groups of nursing faculty. An overview of the specific elements of these interactions included a kick-off brainstorming celebration in which the School of Nursing leadership team focused in on the NCLEX competency/student learning outcome targeted for improvement, a follow-up meeting with leadership which included inspirational literature (e.g., Kotter’s model of

change), and an empathetic approach to enlisting the entire nursing faculty’s buy-in to the project. A set of reflective prompts were used to further sharpen and focus specific student learning outcomes. The ensuing departmental workshop was structured on identifying a learning intervention in which faculty teams were sorted by primary teaching year in the program. Faculty identified teaching strategies already employed in classes to support student learning related to infection control. BC and OA professionals led the group in a gallery walk distillation exercise, in which the unfolding case study approach was unanimously chosen as the intervention of choice.

Nursing programs commonly utilize standardized HESI testing throughout pre-determined courses to evaluate mastery of course concepts and content. The Exit HESI exam is an all-inclusive exam used to validate knowledge learned throughout the entire nursing program (Schooley & Kuhn, 2013). Langford and Young (2013) reported an increasing number of nursing programs throughout the United States administer the Exit HESI standardized examination as a 96% - 99% precise indicator of successful passage for first-time test takers of NCLEX-RN exam. Exit HESI scores were compared to NCLEX pass rates for three cohorts of graduates from the School of Nursing. Figure 1 illustrates a positive correlation of this indicator. Although the correlation was slight, faculty found this information helpful as it validated Langford and Young’s (2013) report that the Exit HESI is an indicator of first time NCLEX-RN success.

Figure 1
Exit HESI Compared to 1st Time NCLEX Success

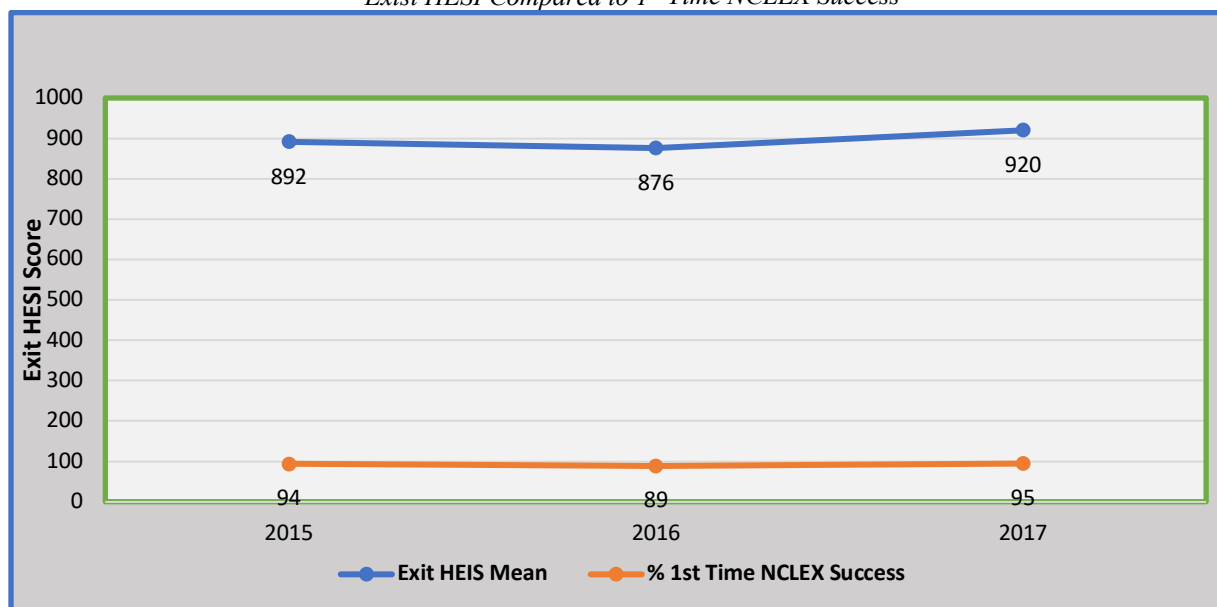


Table 1
NCLEX Test Plan Reports Comparison of Client Needs Categories to National Population

	2015	2016	2017
Management of Care	64	68	52
Safety & Infection Control	49	55	44
Health Promotion Maintenance	56	62	51
Psychosocial Integrity	47	66	52
Basic Care & Comfort	51	55	43
Pharmacology	54	46	52
Reduction of Risk Potential	56	59	50
Physiological Adaptation	55	62	58

The National Council of State Boards of Nursing (NCSBN) Program Reports provide nursing programs throughout the nation with specific data related to student performance on the NCLEX. The NCLEX-RN Program Report provides information in four primary sections: 1) the Summary Overview, 2) the NCLEX-RN Test Plan Report, 3) the Content Dimension Reports, and 4) the Test Duration/Test Plan Performance Report. Additionally, the Program Report compares graduate's performance on a regional and national level. Faculty intently examined two sections of the Program Report—the NCLEX-RN Test Plan Report and Content Dimension Report—for three cohorts of graduates from the School of Nursing. The Client Needs category is the majority of the Test Plan Report and based on the NCLEX-RN test plan. The test plan is divided into four major categories with two of these categories further organized into six subcategories: 1. Safe and Effective Care Environment, including the subcategories of Management of Care and Safety and Infection Control; 2. Health Promotion and Maintenance; 3. Psychosocial Integrity; and 4. Physiological Integrity, including the subcategories of Basic Care and Comfort, Pharmacological and Parenteral Therapies, Reduction of Risk Potential, and Physiological Adaptation. Table 1 illustrates programmatic percentile rankings in each content area based on the median performance of graduates. Utilizing 50% as a benchmark, Safety and Infection Control rankings dropped from 49% to 44% in two of the three cohorts, whereas Psychosocial Integrity, Basic Care and Comfort, and Pharmacology failed to meet benchmark in only one out of three cohorts during the three years.

The Content Dimension report provides information related to graduates' knowledge within six frameworks that include Nursing Process; Human Functioning; Health Alterations; Wellness/Illness Continuum; Stages of Maturity; and Stress, Adaptation, and Coping. Table 2 demonstrates percentile rankings based on median graduate performance in each of these content areas for the three cohorts examined. Although there were areas below benchmark in all six frameworks, ranging from 32% to 49%, the most significant student learning deficits were

identified within Human Functioning, which ranged from 36% to 49% as compared to national percentiles.

Faculty discussions related to findings within the HESI/NCLEX blueprint data led to identification of focus areas to improve programmatic student learning outcomes. Because of mid-low range performance in the Client Needs categories, there was deliberation about whether to focus on one distinct area related to the NCLEX-RN test plan, specifically within the Safety and Infection Control portion, or to address all categories that fell below benchmark. Faculty determined the most effective course of action would be to focus on Safety and Infection Control in the Client Needs area due to the lower percentiles within the past three years and the fact that this category is the basis of the test plan. Some of the Human Functioning aspects, such as Comfort, Rest, Activity, Mobility and Nutrition, may be included as focus areas in the future. Though departmental NCLEX pass rate and HESI scores were acceptable and the majority met benchmarks, faculty expressed a desire to work collaboratively in addressing key curricular and outcomes-based issues in monthly faculty meetings.

The team determined that a comprehensive approach incorporating theoretical and clinical nursing components across the curriculum would result in improved student learning outcomes. The BC and OAA guided faculty development efforts through facilitation of reflection and visualization techniques based on adult learning theory. The session began with faculty identifying the ways students learn to apply safety and infection control concepts in coursework. In this 2-hour "intervention brainstorm session" held in an active learning classroom, BC and OA professionals led faculty in a series of reflective prompts to identify and refine the specific learning intervention that would have the most positive impact on students' infection control performance. Working as teams, colleagues specifically identified where the content was taught throughout the curriculum, as well as how the concepts were applied in clinical experiences. Assignments and activities currently used to introduce, reinforce, and master the safety and infection control knowledge and skills were written on the glass boards and displayed as a gallery throughout the active learning classroom. Faculty participated in a "gallery walk" to process this information relative to individual course content and

Table 2
NCSBN Content Dimension Reports Comparison to National Population

	2015	2016	2017
Assessment	54	57	58
Analysis	58	55	50
Planning	61	68	52
Implementation	54	55	49
Evaluation	55	46	46
Nursing Process			
Protective Functions	59	55	49
Sensory-Perceptual	53	57	49
Com, Rest, Act, Mob	48	54	36
Nutrition	49	57	48
Growth & Develop	53	61	50
Fluid-Gas	62	58	55
Psychosocial Cultural	51	57	52
Elimination	48	50	47
Health Functioning Health Alterations			
CV	55	54	48
Endocrine	61	59	60
GI	57	60	52
Reproductive	51	60	56
Integ/MS	49	56	48
Immune	53	51	47
Neuro	54	64	51
Psychosocial	52	56	51
GU	52	57	48
Respiratory	53	61	53
Health Promotion	46	58	53
Health Maintenance	54	49	49
Health Restoration-Acute/Simple	58	58	51
Health Restoration-Acute/Complex	48	66	51
Wellness/Illness Continuum Stages of Maturity			
Natal	62	55	49
Childhood	51	55	46
Adolescence	54	70	59
Adulthood	55	61	50
Older Adulthood	60	57	57
Lifespan	47	52	50
Stress, Adaptation & Coping			
Physiologic needs	61	59	49
Self-concept	48	60	55
Role function	53	32	57
Interdependence	57	64	63

understand better where and how the concepts are introduced or reinforced in other courses in the curriculum. Once the safety and infection control content was viewed from a holistic perspective, faculty identified and discussed strategies that could be implemented across the entire curriculum. Suggested strategies included both abstract and concrete exercises such as unfolding case scenarios based on

clinical problems and laboratory/simulation activities discussed as patient scenarios versus an isolated psychomotor skill performance. For example, while students practice insertion of indwelling catheters, faculty would discuss consequences of improper technique and potential complications encountered during the procedure. Faculty then divided into small working groups to identify a plan of

action for incorporating safety and infection control concepts into individual courses and discussed criteria and evaluation tools that would best assess students' performance relative to infection control. A timeline for implementation was constructed, and a follow-up meeting was scheduled.

Results

The results of this analysis led to selection of teaching strategies to promote higher order thinking related to safety and infection control content in all courses throughout the curriculum. Evaluation of student learning outcomes in safety and infection control concepts is tracked each semester. The HESI data for the first cohort of students who benefitted from the newly-implemented teaching strategies revealed an aggregate score of 956, which exceeded the 850 benchmark and previous cohort scores. While improvement in student learning is expected, the process has been transformational for faculty and departmental culture as well. Faculty, particularly junior-level colleagues, are taking the lead role in implementing small, yet pivotal changes in courses. Included in the efforts are designing interactive and engaging classroom activities, creating simulation vignettes, leading "brown-bag" sessions for faculty, discussing effective strategies, pursuing data-driven publications in peer reviewed journals, and pursuing professional presentation opportunities related to learning improvements.

Through this collaborative partnership, additional support has been provided to newly on-board faculty and junior faculty (less than 1 year experience teaching) who need more dedicated/structured support for professional growth in scholarly/research-related skills and mentoring. For instance, the BC facilitates a year-long program of professional development for new faculty in the first two years at the university. The New Faculty Scholars (NFS) program combines face time with upper-level administrators, interdisciplinary mentoring groups, and development workshops to aid new faculty in career planning, navigating academic cultures, and connecting to resources related to teaching, research, and outreach activities. In the last two years, 88% of new faculty in the School of Nursing have participated in the NFS program.

Lessons Learned

There were many lessons learned from this collaborative effort implemented to improve student outcomes. These lessons included:

- Make student improvement a strategic goal from administration to the faculty level. This includes increasing visibility of faculty scholarship/research in the areas of teaching and learning, as well as community outreach and scholarship.
- Establish faculty commitment and ownership in the process of improving student learning outcomes, thus ensuring teaching excellence is not only valued, but rewarded in faculty promotion portfolios.
- Strengthen infrastructure to facilitate a faculty team-based model that combines senior and junior-level faculty teams focused on, and committed to, developing teaching strategies that promote student learning of concrete and abstract concepts, publishing findings, and disseminating findings to local, national, and international audiences. Encourage these faculty members to publish their strategies in scholarly journals or web-based resources, such as Quality and Safety Education in Nursing (QSEN) teaching strategies.
- Analyze and disseminate data-driven findings to faculty and stakeholders/administration. Data visualization/dashboard communication is a priority for basing curricular decisions. Additionally, formulation of action plans at the course level should extend beyond student support services.
- Conduct faculty-led workshops for other faculty that spotlight successful strategies or models used in class. Schedule these sessions over the lunch hour as a brown-bag format.
- Participate in interdisciplinary partnerships to incorporate teaching strategies beyond the nursing discipline, and communicate findings and student learning in diverse ways.
- Promote honest dialogue with faculty about personal and professional viewpoints of remediation and mentoring as a skill base. Teamwork is crucial to improving outcomes, but there has to be a shared philosophy of methods of this remediation and student success strategies involving faculty. One of the most transparent conversations we experienced was the perception and concern of moving into a "hand-holding" model of teaching that would not be ultimately beneficial to maturing students and promoting student success. This exchange exposed a need for more congruency of expectations, workload, and role refinement of faculty members and those working in the student success program.
- Construct, promote, and communicate high expectations for both learners and faculty, thus capitalizing on intrinsic and extrinsic motivation to succeed and excel.
- Incorporate innovative technology strategies into future collaborative partnerships: incorporate partnerships with instructional designers and distance learning experts.

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