

Lessons Learned

Closing the Assessment Loop

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NURSING

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The National Council Licensure Examination (NCLEX) is the standardized exam that nursing uses to determine whether or not a candidate is prepared for entry-level nursing practice. Unfortunately, NCLEX failures are increasing in programs nationwide, and the nursing program at California State University, Fresno was no exception. In 2005-2006, our first time pass rate on the NCLEX fell to 75.19%.

As the NCLEX pass rate dropped, the Department of Nursing began to look at a number of administrative and curricular changes that had been implemented in response to the rapidly changing nature of the healthcare field and the push for increased efficiency and effectiveness in higher education. For example, in the past few years, the nursing program had moved toward distance-delivered coursework and the use of technology in the classroom. Additionally, due to the nursing shortage, we had begun admitting more students. Had we reached that critical point where learning began to suffer? We had lost three units, two in clinical supervision and one in pathophysiology. Had that resulted in students being ill-prepared for entry to practice? The program had also changed its emphasis to critical thinking and learning to learn rather than the acquisition of isolated and soon outdated knowledge and skills. Was this the cause? Or was the culprit curricular gaps that had inadvertently appeared? The effects of these changes on student learning and NCLEX passage had not been determined. Although we had lots of data, no analysis or trending had been done so that strengths and weaknesses of the program could be identified and weaknesses addressed.

For the previous 3 years, the Department of Nursing had used a series of nationally normed formative and summative content mastery tests. As part of our discussions, the nursing faculty decided to use these tests to assess the current state of the curriculum, if the tests were predictive of NCLEX performance. A statistical analysis of the three years of data showed that the ATI testing system did accurately predict

NCLEX performance. Then we had to decide where in the curriculum to give the various tests, so that all material on the tests would have been covered before they were administered. We also had to establish benchmarks on the test to determine who would be referred for remediation.

The program started using the tests to help identify gaps in curriculum and areas needing additional content or clarification. We looked at the aggregate results. Did everyone do poorly on acid-base balance? If so, where was that taught in the curriculum? If, for example, that content had been lost somewhere along the way, it was added back in. If it was being taught, did more time need to be spent on it or did it need to be taught a different way to make sure that students understood the content? The tests were

also helpful in aligning our coursework to NCLEX expectations. Probably, however, **the area in which assessment was the most beneficial was in the early identification of students needing remediation.** Generally students who do poorly at the beginning of the program struggle all the way through and often are not successful on NCLEX in the end. This identification allowed us to help them earlier. **Through the use of assessment, the Department of Nursing revised its curriculum and increased the first time pass rate on the NCLEX from approximately 75% to over 90%, resulting in 21 more graduates entering practice in a timely manner each year.**

Electrical and Computer Engineering

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The SOAPs of the Electrical and Computer Engineering programs are designed such that all learning outcomes are assessed by multiple assessment tools. Since several assessment tools are administered every year, most of the learning outcomes are assessed in one way or another annually. Methods used include an employer survey, alumni survey, embedded questions in finals, and an Industry Advisory Council.

The employer survey conducted in 2010 revealed that while employers are satisfied with the performance of the graduates in all learning outcomes, communication skills received the lowest score of 3.8 (rubric scale 1-5). Meanwhile, direct assessment of students' work found that ability in "Formulating and Solving Engineering Problems" received the lowest score of 2.82.

Both of the above problem areas are being addressed with the department's new **ECE Clinic**, which receives funding from industry partners in the region. **The clinic allows students to make presentations, thereby working to improve communication skills while enhancing their hands-on and problem-solving skills via practical research/project activities sponsored by industry.** Communication skills are also being further developed using **Projects Day**, a culminating experience at the end of senior year when students present their projects in poster format for a mixed group of attendees including both campus and industry representatives.

For another way to address problem-solving skills, the department decided to dedicate at least one lecture session every semester in all courses (including labs) to present to the students a typical problem formulation and solving case-study. And additionally, the most recent development is the inauguration of new workshops on problem solving led by industry representatives. At these so far highly successful events, engineers from various companies in the region present practical scenarios which require the students to "ramp up" their skills to the point that solving a problem in practice becomes more natural. Future assessment results will be carefully reviewed to determine if the expected improvements in communication and problem solving resulted from the new reinforcement tactics.