

Innovative Use of Concept-Focused Testing to Improve Comprehensive Results

A deeper knowledge of difficult concepts is necessary to prepare nursing students for higher stakes testing, such as licensing or specialty certification examination. To function as effective clinicians, health professionals must acquire a large store of domain-specific knowledge salient to many situations. The retrieval and application of salient knowledge requires a well-organized, comprehensive knowledge base. Testing, when used as a teaching strategy, enhances the retention and retrieval of information; it also primes the mind to organize information within memory such that it can be flexibly applied in different contexts (Putnam, Nestojko, & Roediger, 2016). Graduate nursing faculty attempt to assess the learning experience through innovative testing methods. Limited evidence exists on the effects of concept-focused testing to enhance knowledge. This article explores the positive impact of concept-focused testing on comprehensive test results and student knowledge.

Concept-Focused Testing

Concept-focused testing is a method of testing used by the authors to heighten student learning by focusing the learning experience on concepts in need of additional review. The concepts were identified by students and faculty with the aim of improving concept knowledge and comprehensive test results. Students within the graduate neonatal nurse practitioner track participated in the concept-focused testing activity.

At the beginning of the final didactic course during the neonatal nurse practitioner program of study, students were asked to post to a discussion board five concepts they considered weak and to rank them from 1 to 5, with 1 being the weakest. The self-identification of weak concepts allowed students to participate in the design of the learning experience (Binks, 2018). Faculty completed a comprehensive analysis of examination results from the previous two neo-

natal nurse practitioner courses to identify weak performance concepts. In most cases, examination analysis results correlated with the concepts most students self-identified as weak. These correlations guided the development of a series of multiple choice quizzes for concepts identified as weak. Additional didactic and application review of the concepts were provided in preparation for each concept-focused quiz.

A total of five 20-question quizzes were developed. The concept-focused quizzes accounted for 20% of the total course grade, or 5% for each quiz. On completion of each quiz, students received the correct answer rationale along with concept referencing for additional self-study. Given that students identified a variety of weak concepts, the majority of students identified similar concepts providing faculty with the ability to select the most common areas for enhanced learning. All students were required to take each concept-focused quiz as it provided students with a review while helping them to prepare for the final comprehensive examination.

For example, the majority of students identified calculations for the neonatal patient as a weak concept. Students were provided content to review, additional readings, and practice calculations as they prepared for the concept-focused quiz. Faculty developed a 20-question multiple choice quiz that included concepts such as fluid volume calculations, calories based on body weight, calorie calculations based on a combination of nutritional intake, and common medication calculations. A detailed review was provided following the quiz as a way to further enhance the learning experience and identify areas for self-study.

Student Evaluation

Student feedback was overwhelmingly positive. The majority of students agreed that this form of testing was helpful in advancing their knowledge and deepening their learning through a focused review of concepts. Students expressed initial anxiety related to re-

testing difficult concepts; however, they were grateful for the concentrated review. Students expressed satisfaction with the opportunity to enhance their knowledge and recommended including concept-focused testing in future courses. Concepts tested within the quizzes improved the end-of-course comprehensive examination performance related to those concepts. Students provided additional verbal feedback on improved comfort levels related to previously self-identified weak areas. Overall, student feedback revealed a positive learning experience and appreciation for the opportunity to review concepts in preparation for certification examination.

Implications for Education

An increased understanding of difficult concepts is necessary to prepare students for higher stakes testing. Concept-focused testing affords the opportunity for students to engage in the learning process by identifying weak concepts for additional review and building necessary knowledge required for a deeper knowledge development. Opportunities exist to potentially use concept-focused testing within peer-learning exercises, team-based testing, and other nursing courses within nursing education.

References

- Binks, S. (2018). Testing enhances learning: A review of the literature. *Journal of Professional Nursing, 34*, 205-210.
- Putnam, A.L., Nestojko, J.F., & Roediger, H.L., III. (2016). Improving student learning: Two strategies to make it stick. In J.C. Horvath, J.M. Lodge, & J. Hattie (Eds.), *From the laboratory to the classroom: Translating the science of learning for teachers* (pp. 94-121). New York, NY: Routledge.

Curry Bordelon, DNP, NNP-BC, CNE
cjborde@uab.edu

Tedra Smith, DNP, CPNP, CNE
Tara Wood, DNP, NNP-BC

University of Alabama at Birmingham

The authors have disclosed no potential conflicts of interest, financial or otherwise.

doi:10.3928/01484834-20190819-11