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Pills, thrills, and pharmacology drills! Strategies to increase student retention in an entry-level nursing pharmacology course^{☆☆☆☆}

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ABSTRACT

The pharmacology course in a nursing curriculum should provide learners with a strong foundation in the knowledge of drugs. In many nursing programs, the attrition rate in pharmacology is often high. This article offers innovative strategies that can engage students in learning and promote successful completion of a pharmacology course. Nursing faculty provided extra learning sessions, in a face-to-face format, for students. Nursing faculty also created a hybrid classroom, using online learning strategies. Student retention in the course increased from 61% when the strategies were not used to 86% after the first semester of implementing the strategies and to 90% after two semesters.

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Introduction

First-semester nursing students often complain that pharmacology is simply too much material to comprehend. This complaint is often of great concern to nursing faculty, who are committed to facilitating student learning in this important subject. Pharmacology is of vital importance for nursing students to learn, so that they can understand the nursing interventions of the drugs that they will administer to patients. In 20 years of teaching pharmacology, we have noticed deficiencies in student knowledge of the integrated science that is required for success. Many students verbalized to us that they had inadequate study skills. They expressed difficulty applying pharmacological concepts to a clinical scenario, as well as difficulty understanding how to integrate

information in pharmacology, that is, pharmacokinetics and pharmacodynamics. Our students had a tendency to memorize information rather than understand how to apply it to safe medication administration in the clinical setting.

In clinical practice, students have a significant role in accurate medication administration and must know safe and effective medication skills including how to assess, plan, administer, and evaluate drug effects (Frandsen & Pennington, 2014). They must know therapeutic uses, drug dosages, side effects, drug–drug interactions, precautions, and contraindications. “The decisions made by nurses affect the health status, recovery time, and even the life or death of a client” (Catalano, 2000, p. 95). As pharmacology faculty, we asked ourselves: How can we make learning the important, complex subject matter of pharmacology fun and effective?

Our first-semester Pharmacology in Nursing course consisted of many adult learners and younger traditional students. The three nursing pharmacology course faculty members who team taught this course implemented a combination of face-to-face and Web-based strategies in an attempt to encourage students to become more engaged in learning.

This was a first-semester pharmacology in nursing course in what was at the time an associate degree nursing program in the southern region of the United States. Two course sections met once a week. Lectures were 2 hours 45 minutes each class period. The Pharmacology in Nursing course was a corequisite course with the Nursing Fundamentals course, so students were enrolled in both courses in the same semester. In the fall semester, before we decided to implement these strategies, of 148 students who enrolled in the course, 58 failed and 90 passed, creating a 39% attrition rate and a 61% retention rate.

☆ Conflicts of interest: none.

☆☆ This article was presented at the 2010 N-ADN National Convention in Atlanta, Georgia. We received a letter from then Editor Maris Lown inviting us to share it in the *Teaching and Learning in Nursing*. We believe these strategies are timeless and very relevant today.

★ This article was also presented at the 2011 L-ADN Annual Conference in New Orleans, Louisiana. It has not been published, nor is it under consideration by any other journal.

★★ Our Lady of the Lake College was an associate degree nursing program when these strategies were implemented. It has since transitioned into a bachelor of science in nursing program. The authors of this article hold associate degree nursing in very high regard, and we hope that this article will inspire other associate degree nursing faculty to utilize some of these strategies with their students.

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This was unacceptable to the pharmacology faculty. A program to increase retention was implemented the following spring semester. Results were positive enough to continue the strategies into the following fall semester. Because the pharmacology faculty members believe in sharing strategies that work, we are sharing our experience.

Our goal was to implement strategies that created student-engaged learning experiences in an entry-level nursing pharmacology course. Lauver, West, Campbell, Herrold, and Wood (2009) suggest that small group- and team-based learning encourage active learning that engage students in dialog to “move from a basic understanding of information at the knowledge and comprehension levels to a higher level of understanding” (p. 133). Beers and Bowden (2005) support the idea that problem-based learning strategies such as case studies and student-directed learning, along with faculty members becoming facilitators of learning, may help students learn how to learn. Experiential learning strategies such as those that are application based, with a hands-on approach, are important strategies for learning (Dewey, 1897; Nielsen, 2011). These strategies are in line with constructivist pedagogy. “The constructivist instructor acts as a facilitator, modifies instruction based on the course climate, and encourages learner control” (Nielsen, 2011, p. 32). We used face-to-face retention strategies and online strategies as a way of retooling study skills to engage students in learning.

Face-To-Face Retention Strategies

Prelecture Sessions

Prelecture sessions were held on the Friday before the following week’s lecture. We called these sessions Prophylactic Fridays. The word *prophylactic* was chosen to let students know that these sessions were created to prevent them from coming to the pharmacology class without preparation. Prelecture Friday sessions helped the students to prepare for the upcoming class lecture. Faculty instructed students on how to effectively use the textbook as a resource at the beginning of the session. Questions about the readings were brought to these sessions so that the following week’s lecture material would not be brand new. Games were incorporated to help the students define pharmacological terms before the scheduled class time and to review the learning objectives and physiological concepts before the drug content lecture. For example, students reviewed basic physiology of the autonomic nervous system (receptors and function) before the autonomic nervous system pharmacology lecture. These sessions provided a designated space and time for students to learn how to prepare for the class. They chose the pharmacology terms to define and the learning objectives from the readings to review as preparation for the upcoming week’s pharmacology class. These were student-directed sessions. Students assigned the information to cover and led the discussions. Peer teaching was evident in that students taught fellow classmates in pairs using a dry erase board to list terms and definitions. We noticed that students were relaxed during these sessions and were able to express themselves freely. Students worked in cooperative learning teams, where each pair of students consulted with one another to answer questions and complete information. Faculty or tutors were available to be consulted on concepts that were difficult for students to understand. This concept clarification was followed by exhaustive discussion among students. This interactive group discussion was important in order for the students to have extensive dialog concerning the interpretation and application of information. During these Prophylactic Friday sessions, students were encouraged to freely express themselves and to present the information in a format that they understood. They used diagrams, analogies, shared stories, and other relevant experiences.

Initially, we observed that student anxiety seemed to increase, especially when students were challenged to teach new material to

peers without faculty instruction. Students were apprehensive about engaging in activities outside of their comfort zone. Students sometimes had difficulty participating in peer teaching because of lack of confidence in their knowledge and interpersonal communication skills. In the end, we observed that students who attended the Prophylactic Friday sessions came prepared for lectures, and over time, we noticed that their anxiety level was reduced. They became more autonomous learners, asking challenging questions in class and being more responsible for their own learning. Their academic performance was enhanced as evidenced by an increase in their course grade. They reported when surveyed that their study skills were enhanced. Faculty enjoyed encouraging cooperative learning with these sessions. When the students were asked to evaluate the sessions, some of the student responses included the following:

- “I feel that without the support from these sessions and the dedicated professors that are willing to take the extra time to promote the success of each student, I would be struggling to pass this course”.
- “Not only did the study sessions help me pass the class but they taught me how to study and figure out things on my own”.

We asked them:

- (a) What impact did the session(s) have on your study skills in NURS 1310? Some responses included:

- “I started to focus more on the adverse effects and expected effects of the medications more than learning the drugs that go into each drug class. When I first started, I focused more on groupings and the names of the drugs and not the adverse effects of the drugs. Learning to study this way helped me pass the class.”
- “These sessions reinforced what I had already studied previously and helped me focus on the topics that I still needed to study.”

- (b) Did you change your study habits as a result of the sessions?

- “Yes I did change the way I studied for the tests.”
- “No, I kept the same studying style, but just focused closer on specific topics that were giving me trouble.”

- (c) Did the sessions influence your study habits in other courses? Were you successful in these courses?

- “Yes, this class taught me how to study and how to prepare for all nursing courses. Before this, I was used to straight forward style test questions. This class, along with the sessions and tests taught me how to study and what to expect in all future courses. I have been successful in every class, passed every class, including pharmacology without failing any of them.”
- “These sessions did influence my study habits some; I now try to have a quiz session with a friend before each test to better prepare me for the examination by pointing out my weak areas.”

Postlecture Recitation

Postlecture recitation was the second face-to-face strategy used in an attempt to reach the many diverse ways of learning, scheduling issues, and individual needs of the students. All of the face-to-face

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