Experiences in Teaching and Learning

Comparison of electronic versus paper rubrics to assess patient counseling experiences in a skills-based lab course

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ABSTRACT

Background and purpose: To evaluate an electronic counseling rubric to facilitate timely student feedback and explore differences in student performance, student anxiety, and self-perceived preparedness in a high stakes practical exam when using a paper rubric versus an electronic rubric.

Educational activity and setting: Two cohorts of students in the third professional year were evaluated using the same rubric criteria: cohort 1 (n = 97) used traditional paper rubrics and cohort 2 (n = 104) used electronic rubrics. Cohorts were surveyed to measure anxiety and perceived preparedness in patient counseling skills one week prior to a practical exam, and cohort responses were compared. Student practical exam performance was also compared between the two cohorts.

Findings: Results showed no significant relationship between electronic rubric use and student anxiety (p = 0.07) or student exam performance [average score 53.42 points (SD 3.65) and 53.93 points (SD 3.78) in Cohort 1 and Cohort 2, respectively]. Perceived exam preparedness was higher among students using electronic rubrics, with timing of feedback being the mediating process in increasing preparedness (p < 0.01).

Discussion and summary: Electronic rubrics resulted in more timely feedback on patient counseling skills, and students felt more prepared for their practical exam. This did not result in a significant difference in practical exam performance between the two cohorts. Additional methods to incorporate electronic rubrics into the course will be explored.

Background and purpose

Feedback is a cornerstone in clinical education.[1] The methods used to provide feedback and the variables that affect the feedback process all impact student performance.[2] Although there is existing literature documenting variables that influence quality of the observation and rating of performance, there is limited information about other variables that impact the feedback process.[2]

The Accreditation Council for Pharmacy Education (ACPE) Standards emphasize a curriculum that prepares students for advanced pharmacy practice experiences (APPE) as outlined in Standard 25, specifically Key Element 25.8.[3] The domains of pre-advanced pharmacy practice experiences, found in Appendix A of the Guidance Document, outline that performance assessments should be completed to ensure student readiness to enter APPE.[4] One of the domains specifically focuses on patient education. Additionally,

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ACPE Guidance for Standard 24 encourages colleges of pharmacy to measure perceived stress in students and the impact it may have in student performance.[4]

A review of the literature reveals several studies in medical education that have described timeliness of feedback as being an important factor in improving performance.[5–7] Pharmacy education has also demonstrated that one important characteristic of quality feedback is the timeliness of the feedback.[8–10] Ambrose and colleagues[11] describe seven research-based principles for smart teaching. They discuss the importance of aligning "goal-directed" practice with targeted feedback and offer that feedback must not only be linked to additional practice opportunities for students but also be provided at a time and frequency when students will be most likely to use it. Feedback must consider both how soon following the activity students will receive it and how often students will receive it. Despite recommendations that feedback should be specific, measurable, accurate and timely, there are many challenges to delivering ideal feedback such as time constraints, workload, and the number of students in a class.[12,13]

In addition to the timeliness of feedback, another important aspect when considering professional development is students' self-perceived confidence in academic performance or exam preparedness. Upon reflection over several years of student feedback from student course evaluations, faculty observed a theme related to student stress, particularly regarding the high stakes lab practical examinations in the Pharmacy Skills and Applications (PSA) course series.

To address these issues of anxiety and feedback timeliness, a paper counseling rubric was adapted to an electronic format. The purpose of this research was to evaluate student anxiety and exam preparedness using feedback from electronic versus paper rubrics in a skills-based lab setting. There were three objectives of this project. The first objective was to evaluate if an electronic assessment tool would provide timelier formative feedback to students following their weekly practice labs. The second objective was to measure if students' test anxiety improved prior to the lab practical due to immediate feedback on their weekly performance using an electronic rubric. The third objective was to evaluate student perceived exam preparedness in ability to successfully complete the patient counseling component of the lab practical because of more immediate feedback from the electronic rubric. The authors hypothesized that if students were given more timely feedback and had access to their performance scores electronically over time, they would be able to focus on areas of weakness and to prepare more effectively for the high stakes lab practical.

Educational activity and setting

Setting

PSA, a skills-based lab course, is a six-semester sequence that aims to develop student pharmacists' practice skills. Topics are threaded throughout the PSA series where the complexity level increases from basic (P1 or first professional year) to intermediate (P2 or second professional year) to advanced (P3 or third professional year). Students earn a letter grade each semester. This team-taught series incorporates a 50-min lecture with a two-hour lab to provide students hands-on experiences to prepare them for pharmacy practice. Advanced Pharmacy Skills and Applications (APSA) is the final course in the PSA series, and all third professional year students are required to take the course. The APSA course was selected as the focus of this study since patient counseling rubrics are utilized in both weekly labs and lab practicals throughout the fall and spring semesters.

Lab practicals are high stakes exams that are held after each semester, and a minimum score of 70% on each assessed skill is required to advance in the curriculum. Students not meeting this minimum are given one opportunity to remediate and will fail the course if they do not meet the minimum score at that time. Students have indicated on course evaluations that lab practicals induce anxiety due to these consequences.

During the second and third professional years, students are expected to counsel a mock patient during the lab practicals. A prescription is presented to the student along with a blank sheet of paper, and students are given five minutes to prepare and ten minutes to counsel. Assessment of this skill is captured using a patient counseling rubric, and students are first exposed to the 63-item (60 point) rubric when the topic is introduced during the first professional year (see Appendix A). Students are given multiple opportunities throughout the courses to practice patient counseling and to receive feedback from peers, APPE students, or pharmacy faculty members prior to each practical exam.

Design

This project took place over two academic years of APSA, spring 2014 (cohort 1) and spring 2015 (cohort 2), and all students in the course were invited to participate. Students in each cohort practiced patient counseling four times throughout the semester and received feedback on their skills using a paper rubric (cohort 1) or electronic rubric (cohort 2). To assess the differences between these two cohorts, students were then invited to complete an online survey one week prior to the lab practical during normally scheduled lab times (see Appendix B). Participation in the counseling activities using the assigned rubric was mandatory for course credit, but participation in the survey was voluntary. This study was approved as exempt by the Drake University Institutional Review Board.

Paper rubric sample

Students in cohort 1 were enrolled in the course during the spring 2014 semester. Paper rubrics (Appendix A) were used to assess the student during practice counseling sessions, and following the session the evaluator gave brief verbal feedback to the student. Faculty also provided general feedback to the entire class about their performance, but students were not aware of how they scored in