Impact of Electronic versus Paper Rubrics to Assess Patient Counseling in a Skills-Based Lab Course

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Background
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. The Accreditation Council for Pharmacy Education (ACPE) standards emphasize a culture of assessment as outlined in Standard 24.2 The domains of Pre-Advanced Pharmacy Practice Experiences (APPE) identified in Appendix A of the Guidance Document, outline that performance assessments should be completed to ensure student readiness to enter APPE.3 One of the domains listed specifically focuses on patient education. Several studies in medical education have described timeliness of feedback as an important factor that improves performance.4,5 Pharmacy education has also demonstrated that one important characteristic of quality feedback is the timeliness of the feedback.6,7

Pharmacy Skills and Applications
The Pharmacy Skills and Applications (PSA) course series is a required six-semester sequence that develops doctor of pharmacy (PharmD) students’ skills level. Each semester offers lab-based (basic year-one to intermediate year-two) to advanced (third-year). Advanced Pharmacy Skills and Applications (APSA) is the final course in the PSA Series and was selected as the focus of this study. Six faculty teach in the APSA course, including a coordinator for the semester that oversees course duties such as lab activities, grading, scheduling, and lab practical preparation. One of the key areas of PSA is clinical communication, which includes patient counseling. Within this course, patient counseling rubrics are utilized in both weekly labs (formative) and lab practicals (summative) throughout the fall and spring semesters. Students have traditionally received written feedback via paper patient counseling rubrics 1-2 weeks following lab activities. Faculty also used the data to identify common areas of concern. The Accreditation Council for Pharmacy Education (ACPE) outlined that competency assessment, feedback and physicians' clinical performance: BEME Guide No. 7. Medic Teach. 2006;28 (2):117–28.

Results
The response rates for Cohort 1 and Cohort 2 were 100% and 99%, respectively. Based on the 60-point rubric, the average score in Cohort 1 was 53.42 points (SD 3.64), and the average score in Cohort 2 was 53.93 points (SD 3.79). Results showed no significant relationship between electronic rubric use and a decrease in students' anxiety (p = 0.07). There was a positive and significant relationship between the use of an electronic rubric and the timeliness of the feedback (p < 0.01). There was also a positive and significant relationship between timeliness of feedback and feedback preparedness (p < 0.01). Perceived preparation scores was higher among students using electronic rubrics, with timing of feedback being the mediating process in increasing preparedness, as illustrated below.

Objectives
1. Develop an electronic assessment tool from the original patient counseling rubric to provide more timely feedback to students.
2. Determine if students' test anxiety improves prior to the lab practical due to more immediate feedback on their performance through the use of an electronic rubric.
3. Evaluate student perceived exam preparedness in their ability to successfully complete the patient counseling section of the lab practical as a result of more immediate feedback from the electronic rubric.

Methods
Rubric
The rubric was comprised of 63 criteria (60 points total) in four distinct sections which included:
- Introduction and Patient History
- Basic Counseling Points
- Counseling Session and Communication
- Special Instructions

Rubric: Paper versus Electronic

Paper Rubric
- 3 page document
- Requires printing response to the question: "Provide feedback to the faculty on your experience of..."
- Rubric returned open to students 2 weeks following lab

Electronic Rubric
- Developed through an online Rubric and Assessment tool
- Requires filling out rubric
- Rubric returned electronically following lab
- Student provides feedback through online rubric

Survey Assessment
A survey was administered to evaluate timing and quality of feedback and perceived preparedness for students using paper versus electronic rubrics. Test anxiety was also assessed based on 5-point Likert-scale responses to the following statements:40
- Thoughts of doing poorly interfere with my performance on exams
- During an examination I frequently get so nervous that I forget facts I know
- While taking an important exam, I experience a great deal of anxiety
- During exams, I find myself thinking of things unrelated to the actual study materials
- I feel very anxious when I have to take an exam
- After important tests, I am frequently so tense that my stomach gets upset
- I usually feel my heart beating very fast during an exam
- I usually get very depressed after taking an exam
- I usually get very nervous that I will fail the exam
- I wish I had not done the exam at all
- Even when I was well prepared for a test, I feel very anxious about it

Responses to the question "Please provide your thoughts about the timing of the feedback you received on patient counseling over the course of the semester" revealed the following common adjectives:

- timelier
- immediate
- quick
day
day
day
day

Future opportunities include:
- Assessing individual student performance scores in relation to context of different feedback on different skills
- Assessing how electronic rubrics for other lab activities can be implemented
- Evaluating the impact of electronic rubrics on faculty

Conclusion
The findings of this study showed that electronic rubrics improved students’ sense of exam preparedness as a result of timely feedback. The use of electronic rubrics allowed students to view trends in their performance, with a goal of identifying specific areas within patient counseling that could be improved upon. Faculty also used the data to identify common areas where timely feedback was not provided and used this to improve teaching in the area of patient counseling. As a result of the positive findings from this study, the use of electronic rubrics has been expanded to assess other components within the PSA lab course series.

References