VIEWPOINTS

Student Learning: Perception versus Reality

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Pharmacy education has entered an era of focus on assessment of learning outcomes as an evidence-based approach to determine the effectiveness of instructional methods. Assessment of the learning outcomes is more important than the methods or the process of teaching. We know that what happens in the minds of our students is more important than what the instructor thinks about student learning. Journal authors now include much more information in their manuscripts to document student learning; nevertheless, many published reports in pharmacy education still do not provide adequate evidence of learning.

A scan of papers that have appeared in the *Journal* over the past few years shows many examples of measures that directly assessed student learning and others that focused on students' "perception" of their learning. While students' perceptions of their learning may provide a type of assessment, they should not be used as the primary evidence that an instructional approach is effective. Perception may not be reality.

When authors focus their assessment of learning on student perceptions, students are typically asked to rate on a survey instrument how well they believe they understood a topic, or how "confident" or "comfortable" they are regarding knowledge in an area. Student perceptions of their own knowledge may not accurately assess the higher-level knowledge they will need in practice. By the very act of participating in a course, students may perceive their learning has significantly improved. Instructor and student perceptions of learning are prone to multiple types of biases.

Instructors attempting to demonstrate the effectiveness of their instruction should not rely on student perceptions as the primary evidence of learning. Student perceptions of their learning may provide one subset of information but should not be the primary assessment. Often, student perception data are not validated as a measure of achievement of competencies. Evidence for learning and achievement of competencies should include direct measures of learning, which could be traditional examinations that address course competencies, structured instructor evaluations, use of assessment rubrics, or other direct assessments such as

objective structured clinical evaluations (OSCEs). Guidelines for the assessment of learning are provided in the IDEAS paper by Poirier and colleagues.¹ This document serves as a framework for an evidence-based approach to fully describe a new course or instructional approach. Other papers in the *Journal* provide additional guidance on assessment measures.²⁻⁵

Authors should note that manuscripts are unlikely to be published in *AJPE* if the only measure of learning is student perceptions of their own learning. Editors may return manuscripts to authors who only include student perception data, and manuscript reviewers are instructed to expect validated direct measures of student learning for articles that describe new instructional approaches.

The ultimate endpoint of interest to the pharmacy educator should be whether students achieve desired competencies that indicate the knowledge and skills that are needed to effectively practice pharmacy. Students' own perceptions of their knowledge and skills may not reflect reality or provide an accurate and thorough assessment, and should not serve as a primary measure of learning effectiveness. The quality of pharmacy education and education literature will be improved when standards for publication include the requirement for direct measures of student learning beyond student perceptions of their knowledge and skills.

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