

REVIEW

Practical Insights for the Pharmacist Educator on Student Engagement

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Student engagement continues to be a point of emphasis in pharmacy education, yet there remains little data on tangible means to increase organic student engagement. This review attempts to better define student engagement, draws from educational theorists to emphasize the importance of student engagement, and provides the reader with practice philosophies that can be used across a variety of teaching settings to help develop an engaging learning environment.

Keywords: student engagement, pharmacy school

INTRODUCTION

Within the Accreditation Council for Pharmacy Education's (ACPE) Standards 2016 for the doctor of pharmacy (PharmD) degree, the term engage, engaging, or engagement is mentioned fifteen times.¹ Five of these are specific references to engaging students in educational activities (Standards 10, 12, and 13). Other mentions include engaging as a member of a health care team (Standard 3), engaging in interprofessional communication (Standard 11), engaging in shared therapeutic decision-making (Standard 11), engaging in innovative activities (Standard 4), and engaging in community service (Standard 19). By comparison, Standards 2011 mentioned the term four times in a document twice as long.² Engagement is also a theme in the 2013 Center for the Advancement of Pharmacy Education (CAPE) Educational Outcomes,³ the Core Competencies for Interprofessional Collaborative Practice,⁴ and the 2014 Pharmacists' Patient Care Process developed by the Joint Commission of Pharmacy Practitioners (JCPP).⁵ This suggests a theme that is not only prevalent in pharmacy education, but in education as a whole. That is, the more engaged a student is, the better.

This review attempts to better define student engagement using ideas from educational theorists and provide readers with practical philosophies to improve engagement in the graduate pharmacy classroom.

DEFINING ENGAGEMENT

What is engagement in the classroom? What does it look like? How do we know when students are engaged?

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These are not new questions, but with a new interest in student engagement in pharmacy education, these questions deserve to be addressed. While the two ideas are different, engagement and motivation are terms often used interchangeably to describe student performance in the classroom. The motivated student, as commonly perceived, is one who completes high-quality work in a timely fashion and can function autonomously. However, as discussed by Newman, engagement is not only a desire to succeed in school, and it is more than simply motivation.⁶ Engagement involves a connection and attachment to a particular setting or task. In academia, engagement is described as the student's psychological investment in learning and mastering knowledge or skills. The opposite of engagement is alienation, isolation, or detachment; this is often referred to as "disengagement" and classically manifests itself with students skipping class, disrupting class, or not completing assignments.⁷ Unfortunately, disengaged students are not often this obviously identified. Some disengaged students are typically well-behaved and complete assignments on time, and they may even be some of the highest achievers in a class when using cognitive indicators as markers of success. Of particular concern is that this description of well-behaved students correlates well with notions of engaged students.⁸⁻¹⁰ However, without student engagement, success in school predicts little more than success in school.¹¹

As defined by the National Survey of Student Engagement (NSSE), student engagement represents the amount of time and effort students devote to their studies as well as the resources deployed by the institution to promote participation in educational activities.¹² From this definition, engagement could be assessed using time and effort required on the part of the student. To this point,

the majority of reports assessing engagement evaluate active-learning strategies (eg, problem-based learning, group learning, reflection) using survey-based tools to measure effectiveness.¹³⁻¹⁶ Unfortunately, the ultimate goal of student engagement—creation of a lifelong learner and problem solver—is more difficult to quantify with standard measures of achievement such as test and quiz scores. These standard assessments are not necessarily higher in students who are more engaged.¹⁷

Perhaps the most important question to ask is if engagement matters. Does the student who is more engaged perform better in school? If success in school does not necessarily equate to success in the workplace,¹¹ is improved school performance even an appropriate goal? Lillard and Else-Quest evaluated the impact of Montessori-based education on academic and social performance in 112 students aged 5-12 years old.¹⁸ Montessori education, characterized by multi-aged classrooms, student-chosen work, the absence of tests and grades, and peer collaboration, was associated with improved academic and social functioning as assessed by standardized measures. Similar results occur in other progressive educational models that focus on increasing engagement, including the Steiner-Waldorf, Reggio Emilia, and International Baccalaureate models of primary school education, which all focus on new, humanistic approaches to education that maximize real-world applicability.¹⁹ Given the developmental improvements in young children immersed in progressive models and promising survey-based data^{15,16} related to active-learning strategies designed to increase student engagement, increasing student engagement may not only improve academic performance and retention, but also, if organic, increase student inquisitiveness and ownership and affect lifelong learning.²⁰

HOW ENGAGED ARE PHARMACY STUDENTS?

It is difficult to discern the effectiveness of pharmacy educators at engaging students in learning. A key issue when discussing student engagement is that many educators think of engagement in related but different ways.²¹ At the most basic level, engagement translates simply to getting students actively involved, but this type of surface-level engagement is not the same as a sincere psychological investment in learning.⁷ The bulk of research related to student engagement in pharmacy education refers to the former definition, and investigators have yet to measure psychological engagement.

Many educators concede that the traditional lecture is not a gold standard for teaching and are shifting towards active learning.²² Even though active learning may motivate students to become more cognitively involved, there

is little proof that any form of active learning will increase students' psychological investment in learning. Student success in terms of engagement may come from involvement activities such as interactions with faculty members and other students, writing activities, and extracurricular projects.²³ The NSSE confirmed suggestions that the "one size fits all approach" of classroom activities alone will not promote student engagement. The survey used the term "high-impact practices" to describe learning activities that have large positive effects on student learning and engagement. These practices include learning communities, service-learning, individual work with faculty members on a research project, internship/co-op, study abroad, and culminating senior experiences (eg, capstone, thesis, final project). Important traits shared by those activities is that they demand considerable time and effort, require interactions with diverse populations, and provide meaningful feedback to the learner.²⁴ They also tend to be more than just a series of tasks to complete; they require the learner to be immersed by discovering problems, determining the right questions to ask, and identifying the reasons for doing so, rather than merely trying to find the answer for which the instructor is searching. Former Stanford professor and academic scholar Elliot Eisner posited that presenting content to students in the classroom and then asking them to repeat it back in some other fashion on an examination creates a disposition that does not mirror actual problems outside of the classroom.²⁵ Worrying about grades and content for examinations detracts students from the real goal of synthesizing information for use in the "real world"²⁶ and does little to encourage students to seek deeper and more meaningful comprehension.²⁷

One of the primary issues with regard to high impact practices, however, is that they can be time intensive for instructors. Service learning, research projects, and capstone projects require faculty members to be closely involved with students to provide effective feedback and guidance. In colleges and schools with large class enrollments, the management aspects of several of these at once could be unwieldy. As a whole, however, pharmacy education is making strides towards using strategies that approach high impact.²⁸⁻³³ Practice experiences may be the best example, but, in the classroom setting, team-based learning³⁴ and other types of learner-centric strategies are examples that theoretically engage students cognitively and psychologically.³⁵

One significant unanswered question is, "How do we know if our students are engaged?" Engagement is a difficult and multivariable construct to measure. The NSSE developed 10 engagement indicators that may be used to better gauge assessment in this area. These indicators

(Table 1) are grouped into four themes pertaining to level of academic challenge, amount of learning with peers, types of experiences with faculty members, and interactions with the campus environment.²⁴ Unfortunately, although the NSSE survey is the best instrument for measuring engagement, it is only administered institution-wide at the undergraduate level.

Objective markers that are easier to assess, such as live classroom attendance, have been decreasing over the past 20 years college-wide, including in schools of pharmacy.³⁶ The reasons for this decrease include a decrease in the perceived value of the live lecture,³⁷ which may suggest that current students are less engaged than previous ones. Of particular concern, a study by Hidayat et al involving 135 first-year and second-year pharmacy students suggested absenteeism may be negatively correlated with student success in a therapeutics curriculum.³⁷ Students who regularly attend large lecture-based classes do so based on interest in the material and effective teaching strategies by the primary instructor,³⁸ suggesting pharmacy educators may need to incorporate strategies to improve engagement, with a goal of increasing student attendance and subsequent performance.

PART III. HOW DO EDUCATORS IMPROVE ENGAGEMENT?

As discussed by Marzano et al, the engaging teacher must effectively address four key questions: how the student feels, whether the student is interested, whether the material is important, and whether the student can complete the task (Table 2).³⁹ The first two questions affect immediate, surface-level engagement and may often be independent of the teacher or classroom, while the latter strategies impact long-term psychological engagement.

To improve the mood of the classroom (ie, how the student feels), Marzano et al suggested using five strategies. First instructors should use effective pacing to avoid students getting lost in information provided too quickly or lost in their own thoughts when the pace is too slow. To improve pacing, teachers must have standardized approaches in place for distributing assignments and developing groups, make effective transitions between activities, and provide enough material to keep quick learners busy while not leaving slow learners behind.

One technique that may be effective is the “chunk and chew” approach, where instructors divide a topic into subtopics (chunks) and allow students to process (chew) the information in groups between sections. The instructor should time the chew sections to effectively foster information processing while minimizing free time. Instructors should also facilitate physical movement in classrooms. The childhood merits of recess aside,⁴⁰ varying sensory inputs is a well-established learning system in early education.⁴¹ Another seemingly obvious approach to improving the mood of the classroom is to improve instructor engagement. Using personal stories as well as simple nonverbal cues (eg, smiling) can prove contagious in a learning environment. Incorporating humor into the classroom setting can also improve morale. Jokes should generally not be directed at students, but rather should be self-directed or clips from movies, headlines, etc. Finally, the instructor should strive to build positive relationships both with and among the student body. Strategies to help the instructor identify with students as a person (rather than a medium for information)²⁰ include ensuring fair treatment, showing interest in students on an individual level, and identifying positive information about students.

Table 1. NSSE Engagement Indicators (Course-Level Indicators of Student Engagement)²¹

Theme	EIs (Students Have Opportunity to Participate in/Use...)	Example
Academic Challenge	Higher-order learning Reflective and integrative learning Variety of learning strategies Quantitative reasoning	Rigorous capstone project that requires reflective thought and analysis
Learning with Peers	Collaborative learning Discussions with diverse others	Well-designed group learning activities that involve students diverse in thought, educational background, ethnicity, and/or skills
Experiences with Faculty Members	Student-faculty interaction Effective teaching practices	Establishing a formal mentoring program that helps students develop professional relationships with faculty members
Campus Environment	Quality of interactions Supportive environment	Developing a school culture that promotes and enables faculty-student interactions across a variety of curricular and extracurricular activities

NSSE=National Survey on Student Engagement

Table 2. Questions for Improving Student Engagement in the Classroom³⁷

Question 1. How does the student feel?

- Use effective pacing strategies (eg, “chunk and chew”)
- Facilitate physical movement in class
- Improve educator engagement using personal stories and nonverbal cues
- Incorporate humor
- Build positive relationships with the student body

Question 2. Is the student interested?

- Use games
- Incorporate “friendly controversy” with votes and debates
- Add in unusual facts
- Use Socratic questioning

Question 3. Is the material important?

- Identify with the student on a personal level
- Provide choice
- Use real-world examples, including cases and experiences (e.g., OSCEs)

Question 4. Can the student complete the task?

- Develop tasks that are appropriately challenging
- Consider subjective grading or contractual agreements
- “Flip” the classroom to discuss real-world examples

OSCE=objective structured clinical examination

Many methods have been proposed to keep students interested, but generally these fall within four specific domains. The first of these domains is the use of games. Games are used with success in the classroom,⁴² with take-home activities,⁴³ and in the experiential setting.⁴⁴ Second, “friendly controversy,” such as debates and votes, can be used to foster an interesting environment. Incorporating unusual facts to take advantage of students’ natural curiosity is also recommended, and these can be incorporated at the beginning of a lecture, researched by students and presented in class, or presented by guest speakers.⁴⁵ Perhaps the most well-known means for fostering engagement is through the use of questioning; the truest form of questioning can be found in the Socratic method, which is described in pharmacy education.⁴⁶ A variety of electronic resources such as TurningPoint (Turning Technologies, Youngstown, OH) and Poll-Everywhere (PollEverywhere, San Francisco, CA) allow for electronic polling, which allows students to respond to questions anonymously.⁴⁷

To foster long-term engagement, an educator must connect the student to the information by incorporating the student’s life and ambitions as well as encouraging application of knowledge. Not only is including “real-world” applicability (as encouraged by common examples of case-based learning,⁴⁸ objective structured clinical examinations (OSCEs),⁴⁹ and experiential learning^{50,51}) important, but providing the student with choice may

further increase engagement. As outlined in his 1969 work, *Freedom to Learn*, Carl Rogers discussed the benefits of contractual education across the continuum of education, acknowledging that when students are only passively engaged in activities they do not choose, they are not learning the material in a meaningful way that encourages lifelong learning, application, or inquisition.²⁰ The concept of identifying with a student on a personal level is not new either, and “meaning making,” or providing relevance through the use of real-world applicability, has been emphasized for decades.⁵²

The fourth key question to be addressed by the educator is “Can the student do this?” In other words, the educator should help the student develop meaningful goals. As highlighted by Elliot Eisner, these goals need not be confined to the system of letter grades or examination scores; in fact, reliance on historical success measures, despite their perceived advantage of objectivity, may decrease true engagement, as students correlate success with a course grade.¹¹ However, even while operating within the constructs of a grade-based system, the use of contractual education may provide an opportunity to de-emphasize grades, allowing for student focus to shift toward learning and concept application.²⁰

One model that is gaining popularity as a means of fostering engagement is the “flipped classroom.” Made popular by Harvard Professor Eric Mazur, this mode of teaching aims to offload the traditional teaching activities (eg, lecture and information delivery) externally while shifting application of material into the classroom.⁵³ In theory, this allows the teacher to assume the role of facilitator or coach rather than as a medium for information delivery.

McLaughlin et al described their experience “flipping” a basic pharmaceuticals course consisting of 162 students.¹⁶ Overall, self-reported student engagement significantly increased in the flipped model; further, students noted delivery of information was more effective in the flipped model, as subjectively-assessed learning was enhanced. Of note, completion of assigned readings significantly decreased in the flipped model, which may suggest a diminished utility of assigned readings and a subsequent call for incorporation of alternative forms of representation.¹¹

While the use of technology is revolutionizing pharmacy education and is used in some form by nearly all schools of pharmacy,⁵⁴ incorporation of technology may decrease engagement. The notion of needing to “escape” from a connected world, in some form, goes back as far as Aristotle and is a notable component of the lives of the classic minds of William Shakespeare, Benjamin Franklin, and Henry David Thoreau.⁵⁵ Vigdor et al reviewed the

academic progress of nearly one million primary school students in North Carolina and found that the introduction of a home computer with Internet access was associated with a significant reduction in math and reading test scores.⁵⁶ While these data represent a population notably different from the on-campus pharmacy classroom, occasionally disconnecting from the outside world in the classroom setting may allow students to more fully devote their attention to the topic at hand.

Finally, it remains to be seen whether specific student characteristics foster engagement in the classroom or predict success in more nontraditional settings. Unfortunately, the engaging classroom may offer a stark contrast to undergraduate and primary education for many students,¹¹ and these students may reject the associated change. If characteristics are identified that correlate with success in a new model, such as high motivation or self-sufficiency, schools of pharmacy may benefit from assessing these noncognitive attributes during the admissions process through modalities such as the multiple mini-interview.⁵⁷

A NATIONAL INITIATIVE

Student engagement is a theme that pervades not only pharmacy education but also the spectrum of health professions education. The 2013 CAPE Educational Outcomes provide a goal for pharmacy curricula as schools evolve to prepare practice-ready graduates.³ In particular, domains 2-4 require high levels of student engagement to achieve the outcomes defined. Domain 2 focuses on skill development that prepares students to provide care to individuals and populations, manage medications, and promote wellness. Domain 3 skills include problem solving, educating, communicating, including, advocating, and collaborating. Domain 4 targets personal and professional development through self-awareness, leadership, professionalism, and innovation. Common methods used to achieve these outcomes facilitate long-term engagement including case-based problem solving, OSCEs, simulations, and real-life interactions with patients in introductory and advanced pharmacy practice experiences.

The Core Competencies for Interprofessional Collaborative Practice sponsored by the Interprofessional Education Collaborative (IPEC), a group of six health professions education organizations, defines the competencies required of all health professionals to effectively enter the workforce capable of practicing team-based care. As stated in the report's introduction, "The development of interprofessional collaborative competencies. . .requires moving beyond these profession-specific educational efforts to engage students of different professions in interactive learning with each other. Being able to

work effectively as members of clinical teams while students is a fundamental part of that learning."⁴ The report discusses engagement of students across the health professions, in teams, between education and practice, and includes other stakeholders.

In 2014, JCPP endorsed a Pharmacists' Patient Care Process to promote a consistent approach to the process of patient care by pharmacists. The process is built on the skills defined in the CAPE 2013 Outcomes, including collect, assess, plan, implement, monitor, and evaluate. It also reaffirms the collaborative team-based nature of patient care requiring communication, documentation, and collaboration. Step one of this process requires the establishment of a patient-pharmacist relationship that supports engagement and effective communication with patients, families, and caregivers throughout the process.⁵

The 2016 Standards from ACPE focus in several places on student engagement.¹ Section I, Educational Outcomes, adopts the CAPE Educational Outcomes 2013. In Standard 10, Curriculum Design, Delivery and Oversight, teaching and learning methods that engage students, promote self-directed learning, and address the diverse learning needs of students are required. This standard also requires that students learn patient-centered collaborative care according to the JCPP Pharmacists' Patient Care model. Standard 11, Interprofessional Education, reaffirms the IPEC core competencies and requires team-based learning that engages students in effective communication, collaboration, and shared therapeutic decision-making. While we use technology to develop new techniques to increase student engagement in 2015, active learning and student engagement is not a new concept in pharmacy education. The Commission to Implement Change in Pharmaceutical Education was charged in 1989 to assist pharmacy education in evolving to meet the changing demands of the profession, the health care system, and society by developing a series of recommendations for change. The commission produced a forward-thinking series of background papers and recommendations that guided development of entry level doctor of pharmacy (PharmD) curricula in the 1990s. They are still relevant today as can be seen from the following quote: "It follows, then, that a major responsibility of pharmacy educators is to shift the burden of learning from the teacher to the student. The transition from a dependent learner to an independent learner must occur as the student progresses through the pharmacy curriculum. Students must understand that to become educated is to know what questions to ask and where the answers may be found. Teaching must be achieved through educational processes that involve students as active learners. Teachers must view themselves as coaches

and facilitators rather than merely as providers and interpreters of information.”⁵⁸

BARRIERS TO STUDENT ENGAGEMENT

Perhaps the most significant assessment in the course of a pharmacy students' career is the North American Pharmacist Licensure Examination (NAPLEX). Mean NAPLEX pass rates for graduates of ACPE accredited schools of pharmacy in 2014 was 94.8% (range: 76%-100%).⁵⁹ Some educators argue on multiple fronts that changes to educational paradigms, curricula, and even approaches to instruction are simply not necessary given that national pass rates on the NAPLEX are consistently within a high range with few students ever unsuccessfully attempting the examination. The debate centers on the perceived need to fix a system or systems postulated to “not be broken” if using NAPLEX pass rates as an indicator.

Several practical issues related to increasing student engagement must be considered. Most schools of pharmacy in the United States have undergone at least some expansion in class size since their inception.⁶⁰ With increased class size comes a corollary and proportional escalation in the responsibilities of faculty members including, but not limited to, assessments, grading, questions, e-mail correspondence, and other course dynamics. The added intentional or implied responsibility of increasing student engagement will place a greater burden on faculty members to accomplish a set number of tasks in a given period of time. With growing demands being placed on faculty members, including a greater emphasis on scholarship, class size serves as a cumulative barrier to performing new tasks either at all or at least effectively. Perhaps the grander concern regarding class size centers on its effects on the ability of instructors to effectively engage large groups. As faculty to student ratios increase, the intimacy of a classroom may suffer and with it, the student-faculty relationship. As this relationship becomes less intimate, it becomes increasingly difficult for faculty members to accomplish many of the tasks required to increase engagement. It is particularly challenging for faculty members in large class settings to assess how students feel and/or if students are expressing interest in course lessons/content. In many instances, achieving and maintaining student interest in course material is linked to increasing the entertainment value of content or instruction. Increased use of games or gaming might be a method to increase interest particularly among the millennial/social media generation, which is accustomed to high tech interventions. Class size may serve as a significant additional barrier to the implementation, management, and execution of game-based instruction.⁶¹ Most faculty

members would agree that the complexity of almost any issue related to educational instruction increases in proportion to class size.

Ultimately, no matter what interventions faculty members may make to increase engagement, the rate-limiting step may actually be the student. Not all students are created equally, and some will respond to certain interventions while others will not bond with a “one-size-fits all” approach. Some would question whether forced engagement of students is in the truest sense still authentic engagement at all, while others would question the conventional wisdom of compulsory engagement. Because of its artificial nature, mandatory engagement might actually lead to unintended student resentment. True engagement requires a personal and purposeful motivation to learning.

A final impediment to implementing strategies intended to increase engagement is that in many ways the concept is difficult to define. Some might argue that, in terms of an engaged student, “you know it when you see it.” Even faculty members at a single institution might have different opinions, thoughts, or interpretations of the meaning of engagement. An inability to objectively define engagement often leads to issues related to measurement, quantification, and defensible research in the area.

CONCLUSIONS

Engagement in the classroom, as evidenced by ACPE Standards 2016, is increasingly recognized as a key component in education, including pharmacy education. While educators have taken steps to move away from traditional lecture-based curriculum, the literature suggests there is still much progress to be made in creating an environment that fosters natural engagement, as this appears to require a shift in mentality as opposed to the simple adoption of specific methodologies. However, by addressing four questions (how the student feels, if the student is interested, if the material is important, and if the task is achievable), it may be possible for educators to create this environment without drastic methodological changes.

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