

Real-time Piazza for Large Class Active Learning

Context

In team-based "active learning," students work in supervised groups to solve challenging problems. It's an effective way to foster mastery of complex ideas. Thus far, however, it only works well in small classes where it's straightforward to assess each team's progress and provide necessary guidance. Many introductory classes are simply too large for in-class, team-based active learning, limiting use of the approach at the precise educational stage where it would be most effective. New online collaboration platforms may solve this problem by making it easy for course staff to engage with groups as they work.

Project

We used Piazza to run in-class, team-based active learning for an introductory Cell Biology course with 140 students. We did this for four challenging activities. We devised a set of four team activities for students to complete with assigned teammates on designated course days. The teams got "homework" assignments prior to in-class activity days, which they were to complete and submit as a group. The in-class portion of the activities were based around staged discussion questions in Piazza, with each group assigned its own subsection. Once their work commenced, the course staff monitored progress, occasionally flagging especially good or off-base answer threads for discussion. We staged the activities with defined stopping points for full class discussion, providing points where the groups' work could be synchronized.

Objectives & Outcomes

Students produced a remarkable range of work, much of it carefully considered and thought-provoking. Other groups initially worked in a halfhearted manner, but they tended to increase their engagement when the course staff highlighted excellent work their peers had done. This allowed the course staff to feature good answers for each of the questions.

Results

Piazza worked extremely effectively, allowing the course staff to pick up on common errors and misconceptions, as well as to highlight particularly interesting work. The system made it

possible to cover more of the activity than in previous years. I evaluated the effectiveness of the team-based activities by assessing the class's performance on quiz questions focusing on relevant material. The team activities were largely successful at strengthening command of course material and problem-solving, most notably among students who otherwise turned in mediocre performances. I anticipate refining use of Piazza in real-time sessions, in part by dividing tasks more clearly among the course staff.

Lessons Learned

The Piazza system worked very well in class, with quick updating for each group's output in segregated group discussion boards. I think import of images taken with cell phone cameras could be more facile and that this would enhance engagement even further. Staging of the activity tends to be a bit problematic because some groups work faster than others. The course staff tend to pick up examples for discussion from the fast moving groups, where we should try to distribute our discussion more broadly.