

Taking the Pulse of the Online Classroom: Data-based Student Engagement

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Abstract: A potential area for improvement in online classroom instruction arises from the ability of the online instructor to see and facilitate changes in the way students engage with course materials, peers, and the instructor, while the class is running. This paper proposes that instructors can look more closely at classroom interactions by examining student data to note patterns in each student's engagement in classroom discussions. Instructors can then take the opportunity provided by the asynchronous online environment to thoughtfully adjust messages to bring about changes in student behavior as they engage in classroom discussions. This allows instructors to take more immediate action than current metrics allow. A simple method of collecting data for this purpose is suggested.

Keywords: online, student engagement, classroom discussion, data, metric

Introduction

Online instructors teach in a space somewhere between traditional face-to-face instructors who unilaterally present to an audience, such as professors standing at lecterns in large lecture halls, and those who bilaterally discuss course concepts face-to-face in the classroom with a small group of students. In the online medium, instructors have the opportunity to interact with students, leaning toward the discussion-oriented face-to-face classroom, but they have a potential advantage over those who work with students in a real-time face-to-face environment.

Teachers and students in asynchronous online classes communicate through the learning management system's discussion features. An advantage of this asynchronous text-based communication is noted in the musings of well-known author Kurt Vonnegut. Along with a variety of stories and novels, Vonnegut also wrote the autobiographical work, *Palm Sunday*. Using a metacognitive approach, he introduced his 1977 *Paris Review* interview by discussing the difference between writing and speaking. According to Vonnegut,

Sentences spoken by writers, unless they have been written out first, rarely say what writers wish to say. Writers are unlucky speakers, by and large, which accounts for their being in a profession which encourages them to stay at their desks for years, if necessary, pondering what to say next and how best to say it. (Vonnegut, 1981, p. 143)

In effect, Vonnegut claims that writers benefit from taking their time when crafting messages. Online instructors have that opportunity in online education – the advantage of time to contemplate a message and its implications before responding to what they see happening in their asynchronous online classrooms.

Of course, online instructors lack the luxury to “stay at their desks for years,” but they do have the opportunity to think and reflect before responding to posts. They are not as driven by the ticking of the clock as a class period winds down. They are also not as driven by the timing of the interactions, worrying about losing the attention of the listeners in a synchronous face-to-face

classroom. Likewise, students benefit from the asynchronous environment because the “format allows time for preparation of discussion materials” (DeCristofaro, Murphy, Herron, & Klein, p. 46). In the online environment, time can become an ally as long as both the instructor and the students remain engaged.

An emerging challenge for online instructors in this still relatively new medium, though, is that they have little to go by regarding judging the effectiveness of their online interactions with students in a timely fashion. In fact, although online instruction has been around for over two decades, instructional designers are still struggling with developing environments that effectively engage students in the online modality. According to Czerkowski and Lyman, (2016), “research on student engagement is yielding increasingly complex questions and issues, the need for research exploring engagement in the context of online learning is greater than ever” (p. 538). Beyond the traditional measures of student success, such as assignments, activities, and assessments, which have some bearing on engagement, online instructors are left with a dearth of timely and clear metrics of classroom success. High-stakes outcomes such as drop-out rates of 50 percent for online courses (Lee, Pate, & Cozart, 2015 P. 54) drive instructors to find metrics they can use to guide their actions as they work to motivate students in online classrooms. Student and faculty end of course surveys combined with infrequent online classroom reviews by faculty managers can leave online instructors waiting until after the course ends before they receive usable information to measure the effectiveness of their methods of engagement.

There are other problems with traditional metrics of classroom success. Face-to-face classroom instructors who receive notice of a visit days or weeks before an observation may skew the results by altering their normal classroom activities because early notification offers the instructor a chance to prepare a lesson differing from that instructor's norm. Alternatively, when an evaluator arrives for a surprise visit, catching the instructor at some stage of a lesson that might be less than optimal for observation, then an accurate measure of overall performance will also be off the mark. For example, a face-to-face instructor might be using best practices in providing a student-centered lesson that demonstrates what the students are doing/learning, but this can be limited by the way the presentations are put together. A great student, the best in a group of collaborators, might be the one presenting for the group. On the other hand, students might be nervous and not able to present what they truly can do, especially with an evaluator in the room. Both announced and unannounced observations can demonstrate some of what is going on in the classroom at a period of time, but neither can provide a complete picture.

Over time, online faculty evaluation methods have evolved from practices used by face-to-face classroom evaluations in concert with the acknowledgment that an evaluator cannot take the time to thoroughly evaluate what is going on in the classroom every day. Even evaluators of online classes cannot take the time to look at all student interactions in all weeks. The measure of faculty success is a hit or miss proposition based on the specific students and weeks selected for observation. Worse, though, using the observer evaluator model originally developed to meet the realities of face-to-face settings, and providing feedback late in a course or after it ends, prohibits providing valuable information to an online instructor in time to help him or her adjust to and benefit the students in the current class.

A potential area for a more immediate access to usable information for online instructors is the self-evaluative approach. Online instructors already know the questions. Are they capturing the

attention and interest of their students? Are they drawing students into a deeper understanding of the course content? Although they know the questions, they might not know how to proceed. For those who have the benefit of some form of built-in data dashboard in their learning management systems (LMS), they can gain some insights. Unfortunately, not all systems provide this information. When provided, data is sometimes aggregated into a table of average performance, leaving out some of the more granular data that can lead to deeper understanding. An example of this is a simple chart that shows which days a student participated in discussions, but not how many posts the student made each day. Another method that has some potential is the use of an LMS data log to determine when students signed in, how long they signed in, and which pages they viewed (Henrie, Bodily, Manwaring, & Graham, 2014, pp. 136 – 137), and number of clicks on different materials students made (Rodriguez & Armellini, 2013, p.4). When available, such information can provide an overall view, but not a detailed picture of student activity. Some systems and schools do not provide this type of information, though, so instructors have to look elsewhere.

Samuel Hubbard Scudder's essay "Take this Fish and Look at It" (1999) offers some practical advice. The writer describes himself as a young zoology student under the close tutelage of a professor named Agassiz. At first, Scudder struggles as Agassiz asks him to examine a fish called a Haemulon. When first asked what he noticed, Scudder falls short of expectations, and his professor admonishes him with the statement: "You have not looked at it very carefully" (p. 271). Scudder decides to dig deeper into his observation. The professor notes that Scudder is drawing what he sees, telling him "A pencil is one of the best of eyes" (P. 271). Over time, and after several conversations, all of which involve telling him to look even more closely, Scudder learns a valuable lesson. He tells the professor that he has seen more than before, but not all. Agassiz consistently tells Scudder to keep looking. Over several days, and throughout the process of looking ever deeper into the details of the Haemulon, Scudder not only begins to understand the fish but transforms himself into a person who sees.

Online instructors need the same level of determination combined with observational and analytical skill to see beyond the commonly used indicators of classroom success or failure. It is not enough to depend on delayed, simplistic, or even non-pertinent information. Instead, instructors need to dive into their classrooms as observers and use the power of close observation to guide the highest number of students to the best possible outcome. Although not a comprehensive view, beginning with a few simple indicators such as number of posts per week, number and time of posts per day, and other similar measures, can provide some insight into their class-facilitation effectiveness.

An observant instructor focusing on student engagement in online classroom discussions can use data to demonstrate which students are engaged in their classroom and which ones are falling behind. By noticing and responding to these indicators, an online instructor can adapt to the engagement activity of each student in a class in close to real time, drawing in reluctant or hesitant learners and improving the odds of their success.

First, consider the number of posts. Are the students required to make a certain number of posts every week? If so, do they meet this minimum? For example, a class might ask the student to engage in an online discussion with eight posts over at least three days of every class week. Some

students post all eight posts in the first three days of the week, some spread the work throughout the week, but others wait until the final three days. Some of the latter get themselves into trouble by waiting too long and having an emergency that causes them to lose a day or two. They lose points. Does this happen often? Do the same students repeat this behavior each week of the class? The observant instructor can work on methods of engaging these students earlier each week by commenting directly to them and drawing them into the discussions as soon as is practical.

Mokoena (2013) sought to understand some of the “factors that discourage or encourage student engagement with, and participation in, the online discussion forums” (p.102) by analyzing the number of substantive responses compared to basic responses, and attempting to identify and the reasons for poor participation. Counterintuitively, the author found that basic responses increased, and substantive responses decreased over time. This result led Mokoena to speculate that the students may have received “insufficient motivation and unclear expectations” (p. 104). Thus, although the number of posts in a given time is an indicator of student engagement, it is not enough to get a full picture of student engagement. Student posts can be analyzed for depth of thought as well. Mokoena suggests that instructors “recognize the students’ work and provide feedback” (p. 104) as a means of motivating students to engage. Perkins and Murphy (2006, p.301) propose classifying student discussions into four categories: clarification (the most common type) posts, assessment posts, inference posts, and strategies posts. This classification provides a more detailed view of student response levels, but time-constrained instructors might find gathering this level of information too cumbersome unless done on a daily basis while teaching the class.

As a second numerical measure, consider the length of student posts. The length of a post can serve as a crude but telling indicator of depth of engagement. Students who consistently fall below a teacher or school-mandated or instructor-mandated minimum can lose points, but they lose even more by missing out on the possibility of engaging with the course content. An instructor can take positive action by using questioning and conversational techniques to draw out the student, leading him or her process and interact with course objectives on a deeper level.

Third, the instructor can look a little deeper to note the thread position of the post. Is the student posting only in direct response to the instructor’s discussion starters? Does the student engage with other students further down the thread? Does the student only respond to other students while avoiding responding directly to the instructor? Keeping track of the data on these questions can show how a student prefers to engage with the course content. For example, if a student prefers to engage with other students, then the instructor can take the role of a member of a conversation, adding some insight without causing the more reluctant student to shy away from directly answering the original discussion prompt.

Fourth, consider the type of posts the student makes. Set up some categories such as:

- Predominantly responding to previous posts with questions;
- Focusing responses on concerns about the ability to complete the work;
- Providing personal examples to demonstrate or explore a topic;
- Providing reiterative explanations of the readings without adding any personal processing of the material;
- Providing higher-level explanations of the class readings that demonstrate deeper processing of the material; and

- Focusing on sympathetic responses rather than on the course objectives.

The above list suggests only a beginning of the process of finding new ways to see the class. Other possibilities could involve determining the sentiment value of student posts to determine if they are positive, negative, or neutral. Once an instructor sees students lagging in engagement, the literature offers possible remedies. Amador and Mederer (2013) suggest using jigsaw activities to create a situation where students use their varied experiences and expertise to discuss a topic and develop a group understanding. Grading can be based either on the group project or the individual contributions leading up to the group project (p. 93). The authors provide an insight into a similar theme of this paper by stating that “Asynchronous discussions give students as well as instructors time to be more thoughtful” (p.94). The authors also suggest using Problem Based Learning where students work with their current understanding of a problem, determine what they need to learn in order to solve the problem, and determine how they will go about learning it (p. 92). Both of these methods give students clarity on how and what to discuss. In the process, they further their engagement.

As Professor Agassiz told student Scudder, “A pencil is one of the best of eyes” (p. 271). Agassiz gave this advice back in the mid 1800’s. The modern instructor might use an Excel spreadsheet, although many do still prefer to use pencil and paper to record student behaviors. The collection medium is not critical. If an instructor is lucky, the LMS might already collect information. Some online classes, for example, show how many days a student has gone without a response from the instructor. Even if that information is not automatically collected, though, keeping track in real time is a simple matter of setting up a spreadsheet and collecting information on the number of interactions between the student and the instructor each day of the class. Such tracking can provide a balance of interaction, allowing the instructor to focus on areas of greatest benefit. That might be in working with reluctant students, and it might also be in making sure that the middle-of-the-road students are getting enough attention that they don’t start falling back. After all, the ultimate goal in addressing student engagement is to achieve a higher level of student success. Chakraborty and Nafukho (2014) note that increased engagement can benefit students in their “course work and timely completion of course assignments and projects” (p. 797). When students are successful in their day to day activities, their assignments, and long-term projects, then they have a greater chance of persisting in the online modality.

Conclusion

Keeping Scudder and Vonnegut in mind, the online instructor can move beyond the traditional classroom review and evaluation cycle to take on a more self-evaluative approach to teaching. Using Scudder’s observational methods, the online instructor can use the benefit of asynchronous learning to see the class. Using Vonnegut’s advice, the instructor can take the time to determine “what to say next and how best to say it” (p. 143) in order to improve the engagement of struggling students.

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