Creating Engaging Student to Student Engagement in an Online Class

Research-in-Progress

Brett J. L. Landry
University of Dallas
1845 East Northgate Drive, Irving, TX 75062, USA
blandry@udallas.edu

Abstract

Online classrooms present a challenge in offering student to student engagement. The traditional mean for this has been discussion threads, however levels of participation and quality of responses are frequent issues. Another issue, is the amount of time on the part of the instructor to review and grade discussion threads. This paper describes and simple and innovative way to use quizzes as peer reviews that allows for student response tracking, anonymous and names responses, and automatically tabulate responses.

Keywords: Online Education, Student to Student Engagement, Peer Reviews, Discussion Boards

Introduction

Online education means different things to different people. It can be environments where content is delivered 100% over the internet in a synchronous or asynchronous environment, or where the course has traditional on ground components integrated with online sessions in a hybrid or blended format. These classes are known by many labels such as Web Enhanced Instruction (Kaminski & Rezabek, 2000); Web Enhanced Course, (Kandies & Stern, 1999); Web-Assisted Environment (McEwen, 2001); Computer Assisted Learning (CAL) (Inoue, 2000); Blended Learning (Voci, 2001), and Electronic Collaboration Technology (E-Collaboration) (Dasgupta, Granger, & McGarry, 2002). Asynchronous classes also known as Asynchronous Learning Networks (ALN) (Hiltz & Wellman, 1997) or Asynchronous Learning Environments (ALE) (Landry, Payne, & Koger, 2008) offer classes that are not time driven and can be accessed at any time without the real time conversational nature found in synchronous, hybrid and blended environments. One of the challenges with asynchronous online classes is providing a means for meaningful engagement. Student to student engagement in the traditional classroom and in synchronous online environments typically takes the form of conversations, presentations, and question and answer sessions. It can also come from peer reviews. However in most online asynchronous classes, student to student engagement is limited to discussion boards and threaded discussions. This is not necessarily a bad thing and Sautter (2007) found that while in class discussion was more effective in building instructor to student engagement and student to student engagement was supported by discussion in online classes due to the written nature of the posts. Robinson and Hullinger (2008) suggest that educators work towards finding new ways to engage students in online classes and this paper sets out to answer the question of how to develop meaningful and engaged student to student interactions in an asynchronous online class using a method that allows instructors on delivering quality online education and being involved in the class. Delivering quality student to student engagement should support the class and not become so time intensive it prohibits the instructor from being a part of the engagement and delivering a good online class. Student to student engagement should not come at the expense of instructor to student engagement.
One of the issues with threaded discussions is not all students are engaged at the same levels. Over the last 12 years of teaching online and blended (or hybrid classes) at two universities in the United States, I have observed that use students can be divided into one of three categories; the ones that post often with meaningful content during the week and comment on other posts, the ones that wait until the last minute and reply with minor comments or "I agree", and the ones that do not post at all. However, adding a grading component to threaded discussions only moves the students in the third category to the second.

Comparing Discussion Threads to Peer Reviews

Two sections of a graduate cybersecurity class at the University of Dallas were used to examine student engagement in a student project peer review exercise. In both sections, students were required to create two 3 minute videos to present to the class. The first video was to describe a cybersecurity breach and the second was to suggest means to mitigate the breach. Students submitted the video in the dropbox and the professor made them available to the class. In section A, students were required to open and watch the videos and post in a public threaded discussion comments on the presentations. Each student had their own thread, so the peer evaluators could easily see who to post to. In section B, the students were also required to open and watch the videos, but were then required to complete a seven question quiz instead of the discussion thread. The result was that in section A, some students watched all the videos and posted comments while other students posted the “I agree” comments without ever watching the videos or reading the papers. It was known that the students did not watch the videos or read the papers because the CMS used, eCollege, tracked which students opened the files.

In Section B, peer reviews were deployed using online quizzes that were linked to the gradebook, so the students gave greater importance to completing them and because they could not see the other students peer evaluations, they had to open and watch the videos. As a result section B had 100% views by all students. As a result, the student got N-1 (the students were told this was a peer review and not to review their own work) critiques and comments of their papers and videos. This larger participation may have been largely due to the fact that the gradebook easily showed the student and the instructor which reviews had not been completed in a tabular format, where it was easy to overlook in a threaded discussion.

Creating a Peer Review Tool

The problem is that eCollege does not have a means to do peer reviews as quizzes or any other functions. As a result, a solution was crafted that gives an easy to use peer evaluation for students to use that did not require the professor to collect and tabulate the results. The first issue is that quizzes created in eCollege require a correct answer. However in a peer evaluation there is no one right answer. Additionally, there is not a means for professors to duplicate quizzes in eCollege, so the professor would have to type the same items over and over again. The solution was a third party tool called Respondus (www.respondus.com) that allows the professor to create the quiz in MS-Word or a text file without a correct answer selected. The quiz was loaded into Respondus, all of the quiz options such as time duration, number of times the student can complete the quiz, time for the quiz, etc., are set and the file was saved. It then can then be uploaded multiple times serially into eCollege. For the sake of an example in this paper, Section B has been reduced to 10 students; Andrew, Brad, Chad, David, Eric, Hunter, Maria, Nancy, and Steven. The professor would upload the first quiz as 'Andrew' and a seven item quiz called Andrew would be created in the selected Unit in eCollege. This process took under two minutes and would be repeated for the remainder of the class.

In eCollege, students were asked to critically read and evaluate each of their peer's paper and presentations and to complete the corresponding quiz for each student. This process was familiar as students had taken eCollege quizzes in this class and in other classes and Figure 1 illustrates what the peer evaluation would look like from the student perspective and how the form provided a rubric for students. In emails with the students in Section B, they related that they found the process very easy, especially with having guidelines in the form of the questions.
Unit 11 : Student Presentations II - Andrew

1. Overall Topic - Did the student address the problem presented in the first paper and video?
   - Yes
   - No

2. Is the paper well written?
   - Yes
   - It was just OK
   - No, it was not proofed and contains grammar mistakes, typos and/or things that do not make sense.

3. Did the speaker introduce themselves and the topic in the video?
   - Yes
   - No

4. How well did the student explain the solution in the paper?
   - Did not explain at all.
   - Poor
   - Satisfactory
   - Exemplarily

5. How well did the student explain the solution in the video?
   - Did not explain at all.
   - Poor
   - Satisfactory
   - Exemplarily

6. Overall - How would you rate what you learned from this paper and presentation?
   - Nothing at all
   - Poor
   - Satisfactory
   - Exemplarily

7. Anonymous feedback to the student: (Professional comments only)

   

8. Feedback to the professor only:

   

Figure 1: Student Review Form
Gradebook as an Instructor Dashboard

Students were instructed that the gradebook would show ‘--’ for all peer reviews they had not completed and ‘0’ for the ones they did complete. Since students were not completing a peer review on themselves, they were expected to have a ‘--’ for themselves. A natural question at this point is why not just use SurveyMonkey or another survey tool for the peer evaluations. The answer is the gradebook tracking for students and the professor. Figure 2 shows the eCollege gradebook for Unit 11 (the second peer review session) illustrating who has completed items and who has not. This gave an easy way for the professor to view who had completed the peer evaluation and to examine what their responses were for each of their peers as the grade was linked to an actual completed quiz in eCollege.

![Figure 2. Student Gradebook](image)

Please note that not all students have completed all evaluations and having the gradebook provides an easy means to determine who has and who has not completed the peer reviews. For example, in Figure 2, Brad completed seven of his required nine peer evaluations and Nancy completed all of her peer evaluations and evaluated herself potentially raising her scores. By clicking on her score (0), the professor can examine her scores and clear her attempt if he or she wants to.

Detailed Evaluation Details

Above each student's name on the top of the gradebook, is a graph icon. Clicking this icon, gives access to the peer evaluation details. For example if we were to click on Andrew's graph it would show a tabulated response for Andrew from his peers as shown in Figure 3. The professor has the choice of either copying and pasting the data here or exporting it as a html file. For simplicity, I just copied the data to a word file that was returned to the student along with student comments. Clicking on the 'View Student Responses' link gives all of the student open ended responses as shown in Figure 4. The great thing about this view is that all student names are hidden and as a result students were more critical when compared to the students in the section that used the discussion board. This may have been in part to the private nature of the reviews. Some students may be apprehensive to speak out against a fellow student for the entire class to see for fear of that student or others then returning the favor and giving them a harsh review. With the private submission, there was not issue of reprisal for a non favorable review.
<table>
<thead>
<tr>
<th>Question</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Overall Topic - Did the student address the problem presented in the first paper and video?</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td># of Respondents</td>
<td>10</td>
</tr>
<tr>
<td>Frequency</td>
<td>10 (100%) Yes</td>
</tr>
<tr>
<td>0 (0%) No</td>
<td></td>
</tr>
<tr>
<td>2. Is the paper well written?</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td># of Respondents</td>
<td>10</td>
</tr>
<tr>
<td>Frequency</td>
<td>8 (80%) Yes</td>
</tr>
<tr>
<td>1 (10%) It was just OK</td>
<td></td>
</tr>
<tr>
<td>1 (10%) No, it was not proofed and contains grammar mistakes, typos and/or things that do not make sense.</td>
<td></td>
</tr>
<tr>
<td>3. Did the speaker introduce themselves and the topic in the video?</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td># of Respondents</td>
<td>10</td>
</tr>
<tr>
<td>Frequency</td>
<td>10 (100%) Yes</td>
</tr>
<tr>
<td>0 (0%) No</td>
<td></td>
</tr>
<tr>
<td>4. How well did the student explain the solution in the paper?</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td># of Respondents</td>
<td>10</td>
</tr>
<tr>
<td>5. How well did the student explain the solution in the video?</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td># of Respondents</td>
<td>10</td>
</tr>
<tr>
<td>Frequency</td>
<td>0 (0%) Did Not explain at all</td>
</tr>
<tr>
<td>0 (0%) Poor</td>
<td></td>
</tr>
<tr>
<td>5 (50%) Satisfactory</td>
<td></td>
</tr>
<tr>
<td>5 (50%) Exemplarily</td>
<td></td>
</tr>
<tr>
<td>6. Overall - How would you rate what you learned from this paper and presentation?</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td># of Respondents</td>
<td>10</td>
</tr>
<tr>
<td>Frequency</td>
<td>0 (0%) Nothing at all</td>
</tr>
<tr>
<td>0 (0%) Poor</td>
<td></td>
</tr>
<tr>
<td>6 (60%) Satisfactory</td>
<td></td>
</tr>
<tr>
<td>6 (60%) Exemplarily</td>
<td></td>
</tr>
<tr>
<td>7. Anonymous feedback to the student: (Professional comments only)</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td># of Respondents</td>
<td>6</td>
</tr>
<tr>
<td>8. Feedback to the professor only:</td>
<td><img src="#" alt="Table" /></td>
</tr>
<tr>
<td># of Respondents</td>
<td>3</td>
</tr>
</tbody>
</table>
Student Responses

7. Anonymous feedback to the student: (Professional comments only)

Student Response #1
Good use of several technologies to give defense in depth. Password rotation, complexity and maybe the use of two-factor authentication might also help.

Student Response #2
Overall, the paper and video were well done. While you mentioned that code changes would be required to switch to a stronger hash algorithm, there still lies the problem of how do they un-hash the MD5 hashes so that they can be converted into SHA-1 hashes? Also, while I agree that switching to the SHA-1 algorithm is a viable option, a SHA-1 hash is still susceptible to rainbow attacks unless a salt is used to generate the hash.

Student Response #3
Both the video and paper included a good recap of the previous breach. In the video, the recap of the previous issue could have been shorter to allow more time for the demo to show more detail about how the encryption protects the SQL database.

Student Response #4
Nice job with the MD5 topic. The video was well done and enjoyed the database explanation with SQL.

Student Response #5
Great job explaining the solutions and even their drawbacks.

Student Response #6
Well written APA citation.

Figure 4. Anonymous Student Responses

The next issue is determining who said 'Well written APA citation.' Andrew's paper had some citation issues and was not in APA format. Clicking on the Show link next to Student Names toggles the anonymous views of Student Response #X to an actual student name. So the professor can use the anonymous view to give back the students and examine more closely with the student names listed. For example, the professor can discuss with Brad why he made the comment that he recorded in his quiz. At the same time, credit could be given to Mark for going the extra step to really engage his peer regarding his paper and project in a professional and constructive manner. Clicking the link to hide masks the submissions, so there is no issue that once a name has been shown that it cannot be re-masked.

Discussion

One of the criticisms to this approach is that we do not know that Mark was really the person reviewing the paper and presentation and then completing the peer review. This issue is not a result of this peer evaluation method, but of having a single factor authentication method (username and password) for the LMS. Enhancing access controls with a two factor authentication would mitigate this identity concern and would not negatively impact this solution.
The second criticism is the time it takes to create a quiz for each student for each round of evaluations. For example, in section B, there were ten students in class and there were two peer evaluations, therefore twenty quizzes had to be created. However, using a tool like Respondus made the process more efficient and ensured that every peer review was exactly the same. This is something that I could not guarantee if I had to type or even cut and paste content for twenty different quizzes. The time invested in creating these quizzes was well worth it as it saved time in not having to hunt through discussion threads looking for responses, and determining who had not answered. The time savings meant I was able to return the reviews quickly to students so they could make improvements for the second paper and presentation.

However, there are advantages for students as well. From the student perspective they have clear expectations of how they are to review and grade each peer evaluation. Via their gradebook view they can see which evaluations have been completed and which are left to do. In this example class of ten students, this is not much of an issue but in larger sections where students complete the evaluations over several days this is a concern. Secondly, the quiz format allows for a quick and easy way to complete the
evaluation. Lastly, anecdotal evidence suggest that students received the comments and suggestions from the first evaluation and improved their work based on the student comments.

**Conclusions**

This paper outlines the successful use of online quizzes at the University of Dallas to generate greater student to student interaction for peer reviews than using threaded discussions. This is not to say that threaded discussions are bad, but that there may be a better tool in our tool box for students to generate peer comments. The solution presented here is inexpensive and integrated into eCollege so students do not have to have another set of credentials. It is inexpensive because it can be created for free with no additional cost to the student. Although it is not necessary, an instructor license for Repondus would make the quiz creation process much easier. Additionally, since all the data is kept in the university’s CMS, there are no additional risk of having student data in another system that may have different protection and privacy schemes especially from FERPA in the United States.

**References**


