

Student Perceptions of the Most Effective and Engaging Online Learning Activities in a Blended Graduate Seminar

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Abstract

The principal concern of this research was to learn more about effective designs of learning activities in online environments. A questionnaire was administered in three sections of a not-for-credit intensive blended graduate seminar in university teaching. The online activities included readings, videos, discussion forum activities and other activities using a range of web-based technologies. Students rated each of the activities on four target criteria: alignment with the course learning outcomes, deep learning, engagement, and value. Students also were asked to identify the most useful activities for each of the five modules and evaluate the course as a whole in terms of navigation, expectations, instructions, availability of materials, instructor presence, and technical quality of media. The results suggest that students' perceptions of the activities followed very similar patterns across the four target criteria. The discussion highlights four distinct design features that characterize the most highly rated activities.

Keywords: online engagement, student engagement, higher education, blended learning, hybrid learning

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In online and blended learning environments, a key determinant of effectiveness is the ability of the online environment to engage the learner. The nature of online learning activities varies greatly, ranging from information transfer (e.g., videos and readings) to active, collaborative assignments. Although there is an abundance of research on the factors (e.g., cognitive, social presence) that contribute to the effective design of an online course as a whole, research on the nature and design of specifically the online elements is scant. The purpose of this study is to

examine the nature of online learning activities that students find engaging and helpful in achieving their learning outcomes.

Review of Related Literature

Most of the literature to date on the design of and engagement in online environments has generally focused on frameworks, strategies, and instructional planning for courses as a whole and not on the design of individual learning activities within a broader context (Moore, 1989; Martin & Bolliger, 2018; Garrison & Vaughn, 2008; Graham, Cagiltay, Lim, Craner, & Duffy, 2001; Helms, 2014). Careful big-picture thought and planning is essential to the development of any course, but it is also imperative to consider the role and design of individual activities as they relate to the overall objectives of a course. Below is an introduction to the relevant literature.

Redmond, Abawi, Brown, and Henderson (2018) propose a framework for engagement as a tool for facilitating and evaluating online and student engagement at the course and program level. This framework was based on earlier foundations of engagement that centered around behavioural, emotional, and cognitive dimensions (Fredericks, Blumenfeld, & Paris, 2004). The Online Engagement Framework for Higher Education consists of the five following interrelated elements: social engagement, cognitive engagement, behavioral engagement, collaborative engagement, and emotional engagement. The authors suggested that instructional designers use the framework to “raise awareness and build capacity” (p. 197) as they relate to the elements.

Garrison, Anderson, and Archer’s (2000) Community of Inquiry (CoI) is a widely used and adapted framework for promoting engagement and collaboration in online environments (Garrison et al., 2009) but has been widely associated with blended learning. The framework consists of three overlapping elements critical to teaching and learning in an online environment in higher education: teacher presence, social presence, and cognitive presence (Garrison et al., 2009). Central to this framework is the role of the teacher, who designs and facilitates the online experience in a way that promotes the other two facets—cognitive and social presence. The idea that it is indeed the instructor that designs, scaffolds and facilitates the students’ cognitive and social presence is key in the planning of any online environment. While a key aspect of teacher presence is to facilitate and be present during the learning process, it is the deliberate design of a course and its activities that provides students with the opportunities to think critically and collaborate with each other.

One of the most well-established starting points for discussions about online learning activities is Moore’s (1989) three types of interaction. These are learner-content interaction, learner-instructor interaction, and learner-learner interaction. Moore stressed the importance of including all three types of interaction in any type of distance course, regardless of the medium or media used. At the time, he acknowledged the challenge in implementing the third type into both thinking and practice. Rapid development of digital tools and the widespread adoption of LMSs into higher education has made learner-learner interaction easier to design, but learner-content interaction—namely in the form of video lecture and readings—often still outweighs learner-learner (and sometimes learner-instructor) interaction (Boling et al., 2012). Martin and Bolliger’s (2018) research into the perceptions of activities and strategies as they relate to each of Moore’s types of interaction confirmed that all three types are highly valued by students and promote engagement. The learner-instructor engagement indicators received the highest ratings of the three types.

As higher education pedagogies slowly shift from a teaching focus to a learning focus, the question becomes, how do we transform the learner-learner, learner-content, and learner-instructor relationships to promote this philosophy? As the role of the instructor changes and, therefore, the nature of learner-instructor interaction, how can we design individual learning activities within a course system that change the way students interact with content? The need for this understanding is particularly relevant as more courses and programs are shifting to blended and fully online formats.

The principal concern with this research is to learn more about how best to design individual learning activities within an online environment that are effective and engaging.

Methods

Research Questions

The following research questions guided this study:

- Which kinds of online activities do students perceive as more/less effective in helping students achieve learning objectives?
- Which kinds of online activities do students perceive as more/less engaging?

Context

The Graduate Seminar in University Teaching (GSUT) is a long-running, 35-hour course offered by the Centre for Teaching and Learning to graduate students. The purpose of the seminar is to prepare graduate students for an academic teaching career. It is typically delivered as an intensive course with five full days of instruction either over one week or once per week over five weeks. While some sections of the course are discipline specific (i.e., fine arts, engineering), the blended section is open to students from all disciplines.

In 2016, the GSUT was offered as a blended course for the first time by reducing the number of hours spent in class each day from seven to four in order to make the learning experience more flexible for participants and reduce the intensity. As a result, three and half hours of course activities were moved out of in-class sessions to online using the university's learning management system (LMS), Moodle, in conjunction with other web tools.

As the planning for the development of the course began, questions about online activity development emerged: Which kinds of activities are most engaging? Which kinds activities are most useful to students in meeting the course goals and outcomes?

The blended version of the course was developed using Wiggins and McTighe's (2001) backward design process. The learning outcomes and assessments remained the same as in other sections of the course, but the task was to identify activities that would promote student learning aligned with the course learning outcomes. For each learning outcome, a set of instructional activities was devised: those best suited for in-class and those best suited for the online environment were identified and developed.

Some online activities were extensions of in-class activities or topics while other topics were addressed exclusively online. In some cases, the decision to put activities online was related to the order in which they should be introduced to students. Table 1 provides an overview of all the online activities and their associated characteristics.

The online activities included some direct instruction, such as readings (either scholarly or more practical in nature), videos (interactive or not), and websites. Every effort was made to make the course as interactive as possible. For example, one set of YouTube videos was made interactive using a tool called EdPuzzle. Learner-learner interaction was also prioritized by developing several collaborative activities. These were facilitated through the use of discussion forums and a Google Doc. The flexibility of the discussion forum as a mechanism allows for a lot of variation in the design of the kinds of tasks students can perform. To take advantage of this flexibility, several types of learning activities were designed; these included structured peer review of assignments, collaborative content creation, debate, and reflection.

Table 1
Characteristics of Course Online Activities

| Activity Name | Activity Type | Interaction Type(s) | Level of Thinking |
|--|---------------------------------|--|--------------------------|
| Forum: Peer Review Assessment Plan | Peer review | Learner-learner Learner-content | Evaluate Create |
| Forum: Peer Review TPS | Peer review | Learner-learner Learner-content | Evaluate Create |
| Forum: Share a Course Policy | Share content | Learner-learner Learner-content Learner-instructor | Evaluate Create |
| Forum: Issues in Assessment | Defend a position | Learner-learner Learner-content Learner-instructor | Evaluate |
| Video: Rubrics | Direct instruction | Learner-content | No output |
| Forum: Video & Discussion - Seven Principles | Collaborative task | Learner-learner Learner-content | Understand Apply |
| Explore UDL Website | Direct instruction | Learner-content | No output |
| Reading: Lesson Planning | Direct instruction | Learner-content | No output |
| Interactive Video: Teaching Teaching & Understanding Understanding | Direct instruction | Learner-content | Understand |
| Forum: Issues in Teaching | Problem-solving scenarios | Learner-learner Learner-content Learner-instructor | Evaluate Create |
| Forum: Share a Syllabus | Content-sharing | Learner-learner Learner-content | Evaluate |
| Quiz: UDL | Check understanding | Learner-content | Understand Apply |
| Reading: Deep & Surface learning | Direct instruction | Learner-content | No output |
| Forum: Reading & Discussion on Conditions of Assessment | Direct instruction & reflection | Learner-learner Learner-content Learner-instructor | Apply |
| Reading: Ten Tips for Grading | Direct instruction | Learner-content | No output |
| Reading: Learning Principles | Direct instruction | Learner-content | No output |

The student questionnaire was administered in three sections of the seminar taught by the same instructor, which ran in spring and fall of 2017, and winter 2018. In total, 59 students (spring $n = 19$; fall $n = 12$; winter $n = 28$) across all three sections responded to the questionnaire out of 74 students who completed the course, making the response rate 79.72%. An invitation to participate in the research was sent in advance via an announcement in the course LMS with all the relevant information. A paper-based student questionnaire was administered by a member of the Centre's staff on the last day of the course along with the usual course evaluation. Participation was completely voluntary, and no compensation was provided for those who participated. All responses were anonymous.

All but five of the respondents of the questionnaire were master's ($n = 29$) or PhD ($n = 25$) students. There was one undergraduate student and four "other," which were certificate or diploma students.

The questionnaire was divided into three sections. The first section asked students for information about their studies, motivations for taking the seminar, motivations for taking the blended section of the course, and general preferences about online learning. It also included some questions that asked them to rate the amount and quality of their interactions with the instructor and their peers, as well as opportunities for learning, reflection, and feedback.

The second part of the questionnaire focused on asking students four questions about their perceptions of online activities completed in the course, organized by module. In total, respondents were asked to rate 19 online activities in terms of how much they agreed with the following statements: (1) This activity helped me achieve the learning outcome; (2) this activity helped me achieve deeper learning on the topic; (3) this activity was engaging; and (4) this activity was a valuable part of the course overall. Response to each statement was presented as a five-point scale ranging from 1 (*disagree*) to 5 (*agree*), with 3 as *no opinion*. The participants were also optionally able to provide comments on each of the activities. These rating items were supplemented by open-ended items asking participants which activities were the most and least useful, and how the activities could be improved. Because of adjustments to the course syllabus, in certain sections one or two activities were replaced with face-to-face activities. These activities received fewer ratings overall.

The third section of the questionnaire focused on the online portion of the course as a whole. In this section, participants evaluated the course in terms of ease of navigation, clarity of expectations and instructions, availability of materials, instructor presence, and technical quality of media. Students were also asked to share their biggest challenge in completing the online activities.

The first and third sections of the questionnaire included or adapted questions from Garrison and Vaughn's (2008) *Student Survey Questionnaire*. The questionnaire was reviewed by two staff members at the Centre for Teaching and Learning, who were instructional designers with expertise in educational technologies.

The questionnaires were collected and transcribed for analysis. Descriptive statistics (percentages, median, range) were used to analyze the quantitative ratings, and thematic analysis was used to analyze the students' written comments. Based on a preliminary review of the data, students' ratings of three of the online activities were excluded from the final results. In two cases, answers to the open-ended items about the activity suggested that the respondents had confused

the online activity with a related in-class activity. In the third case, too few students had responded to the question.

Limitations

Some methodological limitations need to be mentioned. The sample was a group of graduate students who were drawn from a section of a seminar offered by one instructor at a single institution. Only one section of the course was being offered in a blended format at the time of the study. Additionally, this study is limited to perceptions of usefulness and engagement, but other types of outcomes should also inform the design of design of blended courses, such as learning outcomes and attitudinal changes, and conceptual changes in approaches to teaching.

Results

Respondents ($n = 59$) from three sections at least partially completed the questionnaire. Some students had not yet completed all the online activities on the last day of class when the survey was administered and were, therefore, unable to rate certain activities. In addition, three of the activities were not used in all sections of the course. Therefore, not all activities were rated by all 59 respondents. Table 3 indicates the number of respondents for each activity.

Student Motivations and Learning Preferences

Twenty-four (40.68%) respondents reported that they had not known they had registered for a blended section of the seminar. Table 2 shows the reasons respondents chose the blended section of the seminar. They were able to select more than one reason. The two “Other” reasons respondents listed were that it was the only section open at the time of registration ($n = 3$), and they wanted to experience a blended course ($n = 2$).

Table 2
Reasons for Choosing a Blended Learning Course

| Reason | <i>n</i> |
|---|----------|
| I like the flexibility of completing assignments anytime/any place | 19 |
| It was the only available option that fit my schedule | 9 |
| Other responsibilities make it difficult for me to attend an all-day course | 12 |
| Other | 5 |

Note. Number of respondents = 35. Some respondents reported more than one reason.

When asked what balance of online versus in-class activities they prefer, more than half (55.9%) of respondents reported preferring an equal mix of face-to-face and online activities, while about a third (32.2%) preferred mostly face-to-face activities. Entirely online and entirely face-to-face were rated the least preferred modalities at 3.4% each, while only three of the respondents (5.1%) preferred mostly online.

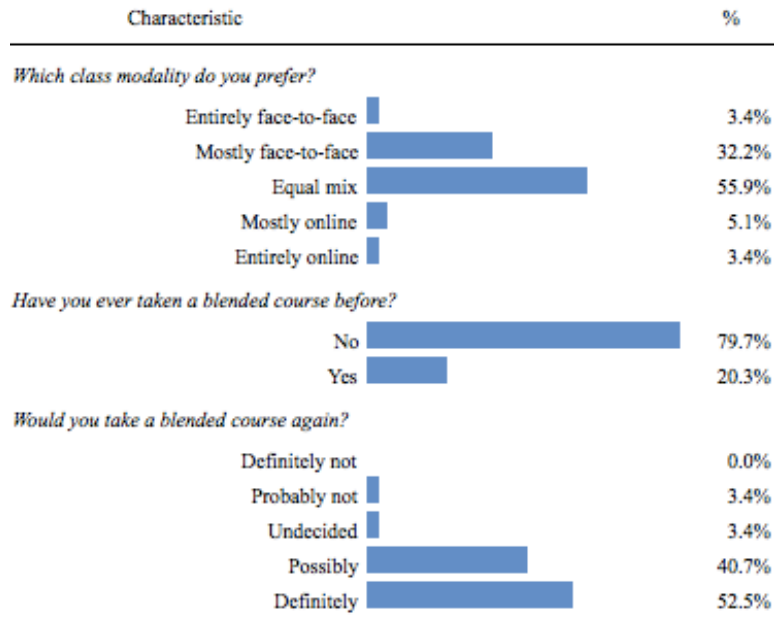


Figure 1. Student characteristics as a percentage of the sample. Note. N = 59.

Nearly 80% (79.7%) of respondents had never taken a blended course before. When asked if they would take a blended course again, over half reported they definitely would, while over 40 percent (40.7%) said they possibly would. Only 3.4% said they probably would not, while another 3.4% reported being undecided. None of the respondents had completely ruled out taking another blended course.

Perceptions of Activity Quality

Overall perceived quality. Ratings for the course activities were typically high, with positively skewed distributions.

Each activity received a separate rating for its (1) alignment with the course learning outcomes, (2) ability to promote deep learning, (3) engagement, and (4) perceived value. These ratings were summed to create a scale indicating an activity’s overall quality. Cronbach’s alpha for each activity’s scale ranged from .86 to .97, indicating high internal consistency. Median scale scores for each of the 19 online activities are summarized in Table 3.

Using this summed score as an overall indicator, nearly half ($n = 8$) of the 17 activities received a score of 16 out of a possible 20. These included online readings, videos, and other online activities.

The four highest rated activities were all discussion forums used in a few different ways. The two highest rated activities overall were both peer review activities facilitated in a discussion forum. The third- and fourth-highest-rated activities were also discussion forums but made use of the forum in different ways. These were the Share a Course Policy and the Issues in Assessment forums.

Table 3
Median Ratings for Perceived Overall Quality

| Activity | Median | <i>n</i> |
|--|--------|----------|
| Forum: Peer Review Assessment Plan | 20 | 56 |
| Forum: Peer Review TPS | 18.5 | 56 |
| Forum: Share a Course Policy* | 18.5 | 38 |
| Forum: Issues in Assessment | 17 | 57 |
| Video: Rubrics | 16 | 56 |
| Forum: Video & Discussion - Seven Principles | 16 | 57 |
| Explore UDL Website | 16 | 53 |
| Reading: Lesson Planning | 16 | 55 |
| Interactive Video: Teaching Teaching & Understanding Understanding | 16 | 57 |
| Forum: Issues in Teaching | 16 | 54 |
| Forum: Share a Syllabus | 16 | 56 |
| Quiz: UDL | 15.5 | 50 |
| Reading: Deep & Surface Learning | 15 | 56 |
| Forum: Reading & Discussion on Conditions of Assessment | 15 | 56 |
| Reading: Ten Tips for Grading* | 14 | 26 |
| Reading: Learning Principles* | 14 | 39 |

Note. Activities marked with “*” were only used in two of the three course sections.

There were five activities that received an overall median score of less than 16. The bottom two activities were both short online readings from academic sites aimed at faculty. The third- and fourth-lowest-rated activities were more academic in nature. One was a forum activity that required students to read a journal article available for free online on the topic of assessment and reflect on the reading afterwards. The other reading was a digital copy of 10 pages from a book, which students accessed via the LMS, provided by the library. The only online quiz also scored in the bottom five.

Activities by perceived engagement rating. Nine of the 17 activities received a median score of four for engagement. Of those which scored higher than 4, three received a median rating of 5 (out of 5) and one received a score of 4.5. In each case, at least half of respondents agreed each of the activities was engaging and none disagreed that they were engaging. Although the order is slightly different, the most engaging activities correspond with the highest rated activities overall.

The Peer Review of Assessment forum was rated the most engaging, with nearly two thirds (63%) of respondents agreeing and 21% somewhat agreeing that it was engaging. The second-most-engaging activity was the Issues in Assessment forum, with more than half (54%) agreeing and about a quarter (28%) somewhat agreeing, while the Peer Review TPS came in third-most-engaging, with about half (52%) who agreed and a quarter (25%) who somewhat agreed it was engaging. The Share a Policy forum received a median score of 4.5, and half (50%) of respondents agreed and 26% somewhat agreed that the activity was engaging.

The four activities that received median scores below 4 were all readings, though one was a reading that required students to respond in a forum. This Reading and Discussion on Assessment forum received a median score of 3.5, with the majority of respondents having no opinion about how engaging it was.

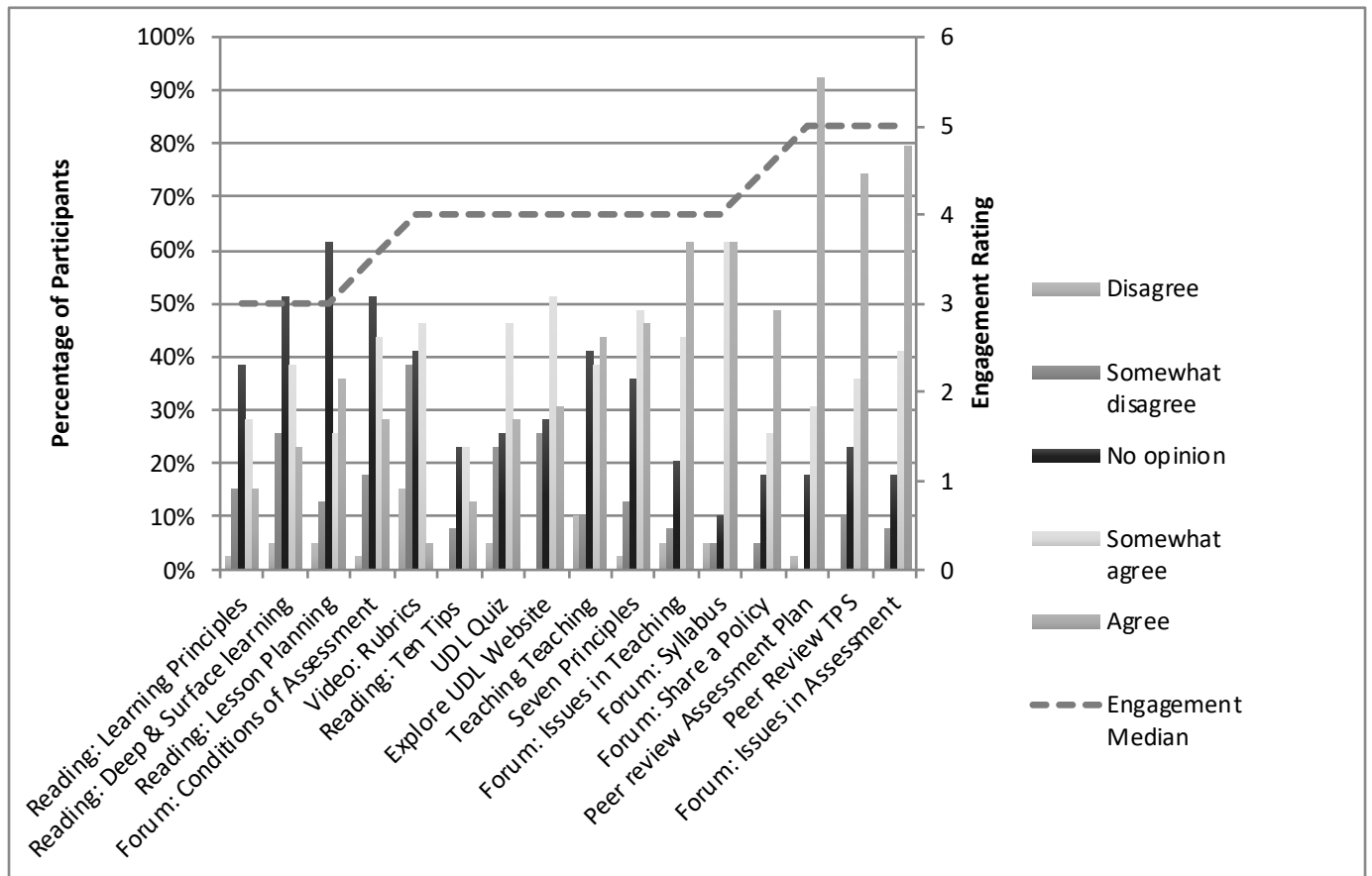


Figure 2. “This activity was engaging” question ratings and median.

The remaining three lowest rated activities each received a median score of 3. All were online readings from academic websites, and the largest numbers of respondents didn’t have an opinion on engagement related to each of them.

Discussion

Student Motivations and Learning Preferences

The purpose of asking what balance of online versus face-to-face respondents preferred was to determine what might be a good balance in the planning of blended courses. Results were clear that an equal mix of both was ideal for more than half of all respondents, and very few respondents reported preferring learning completely online or face-to-face. Blended courses offer the flexibility to students that traditional face-to-face courses do not without completely sacrificing the face-to-face component. Osgerby’s (2013) research in undergraduate courses also showed that students valued the face-to-face and considered it to be extremely important in the instruction of difficult concepts component, but they appreciated the use of an LMS for certain types of activities.

As the results about respondents’ motivations for enrolling in a blended section of this course show, students were drawn to the flexibility of being able to complete course work at any

time anywhere and being able to make it fit into their schedules. Crews and Butterfield (2014) found similar results in a study of flipped learning where 43% of students rated structure the best characteristics of the online classes, with most comments relating to scheduling, flexibility, organization, and expectations.

From these findings, we can suggest two implications moving forward. As the majority of respondents reported preferring an equal mix of online and face-to-face learning, this could be used as a guideline in the planning of future blended courses. Although *equal mix* was not defined in the survey, the authors assumed the respondents would recognize this as an approximate 50-50 division of the course between online and face-to-face instruction. Secondly, this same finding suggests that a blended format might be favourable to completely online courses or face-to-face courses. Considering more than half of respondents said they would definitely take a blended course again, adding more blended course offerings might be an opportunity to suit students' needs while also helping to reduce the strain on resources within institutions by allowing two courses to be scheduled in the same room, sharing the same time slot.

Perceptions of Quality

The principle concern of the research was to inform online activity design. From the results of the individual activities, four of the 17 activities stand out positively from the others in all areas: alignment with outcomes, deep learning, engagement, and overall value.

Highest rated activities. In particular, two of these stand out for earning perfect median scores of 5 in all four questions. Both of these activities were peer review activities facilitated through the use of discussion forums.

Peer Review Assessment Plan. As part of the course requirements, students had to develop a syllabus that they submit at the end of the seminar for a course they are teaching or would like to teach. The seminar's structure guided students through the three steps of Wiggins and McTighe's (2001) backward design. Through in-class and online activities, students devised both course learning outcomes and an assessment plan for their course.

This peer review activity was designed to help students get feedback from their peers on the first steps of this final syllabus assignment. Students posted their learning outcomes and assessment plans into a group forum where they gave feedback to and received feedback from at least one other student. The instructor provided specific prompts in the forum instructions about what to look for when providing feedback.

Peer Review TPS. One of the other assignments in the course was for students to write their own Teaching Philosophy Statement (TPS). After participating in in-class discussions about the assignment, viewing samples, and completing a reading, students wrote a first draft. The instructor created group forums where students of the same group could upload and view each other's drafts. Each student was responsible for providing feedback to two other group members (determined in class on the first day). The instructor provided a template in the forum with specific prompts as a guide for giving feedback. Students uploaded their statements as attachments to the forum by a certain date and had between five and seven days to reply to those had been assigned to them.

Share a Course Policy. This forum was designed to get students discussing important and often contentious issues in the classroom while also providing scaffolding for their final assignment. Students were asked to devise a course policy for their syllabus assignment and share it with the entire class. The instructor suggested possible themes, but students were permitted to

write policies on whatever they wanted. They were also encouraged to give permission to their peers to use the posted policies as a way of co-creating content.

Issues in Assessment. This forum was designed as a debate around contentious issues on the topic of assessment. The instructor prepopulated the forum with eight to 10 threads that contained the contentious statements in the subject line. Students were instructed to choose one that they agreed with and one that they disagreed with and reply to the thread, defending their opinions for each. The instructor monitored the discussion forum and would typically post replies under each of the statements after two or three students had posted an opinion and then again the day after the due date.

The activities that were rated as most engaging and had the highest overall summed scores were all activities that required students to collaborate or share insights with each other. These all used discussion forums as the mechanism for the activities. However, use of a discussion forum does not necessarily make an activity engaging, as less favourable ratings for forums in this course show. Discussion forums are not inherently effective or engaging in themselves, as they are simply mechanisms. However, the fact that a discussion forum is one of the few ways to facilitate learner-learner interaction (and all three types of interaction at once, in fact) in most LMSs is relevant. What makes the forum more or less effective is the design. So the question becomes this: What makes the activity effective and engaging?

Commonalities of highest ranked activities. It is worth noting that the highest ranked activities included indicators from all three elements of Garrison, Anderson, and Archer's (2000) CoI and most—if not all—of Redmond et al.'s (2018) online engagement elements: social, cognitive, behavioral, collaborative, and emotional engagement. However, if we examine the design and requirements of these activities closely, four particular design characteristics are common among all four: They all (a) promote higher order thinking skills at either one or both of the highest levels of Bloom's revised taxonomy (Anderson & Krathwohl, 2001); (b) promote learner-learner interaction and learner-content interaction; (c) provide feedback on ideas or work; and (d) provide personalization of content or task in one way or another. Each of these four design characteristics is discussed in more detail below.

Promotion of higher order thinking skills. At institutions of higher learning, it is expected that students graduating will be critical thinkers, but this expectation is in conflict with the traditional models of instruction. Participants in Boling et al.'s (2012) research interviews confirm that traditional approaches in online courses have included a lot of reading, rarely followed up with any kind of activities to help students make connections or that promote higher level thinking. In order to promote these skills, instructors need to explicitly scaffold them and provide opportunities for students to practice.

Redmond et al. (2018) point to several indicators of the cognitive engagement element of their framework, such as thinking critically, integrating ideas, and justifying decisions, to name only a few. It stands to reason that in order to elicit these kinds of behaviors from students, tasks must be designed in such a way as to scaffold and prompt students to elicit the specific outcomes desired. If the ultimate goal is to get students thinking and acting like disciplinary experts, what kinds of tasks will help them?

Promotion of learner-learner interaction. One participant succinctly made the following point about the most effective part of the course as a whole: “The fact that it is Blended [underlined]. We had the opportunity to learn from the teacher, classmates and later go back home

and read & interact.” The point here is that the learning does not stop once a student leaves the classroom, and in the case of a blended course with opportunities for learner-learner interaction, students are not completing homework activities in isolation, but rather continuing to build dialogue that deepens understanding and promotes reflection. Participants in Martin and Bolliger’s (2018) research singled out small group discussions in particular as important to encourage reflection and promote understanding in the online environment.

One respondent pointed to another benefit by revealing they “got the chance to interact [with] most peers whom otherwise I would not in a face-to-face only environment.” Blended courses offer a unique opportunity for students to interact with those they do not necessarily have contact with in the usual classroom setting. This is particularly relevant in large classes, where few opportunities for learner-learner interaction exist in the typical class. Northey et al. (2015) found that students reported higher engagement and final grades against a control group when they used a Facebook page to supplement a large lecture class. Additionally, research [as cited in Paskey, 2001] from Athabasca University’s online programs suggests that online discussions between students could potentially outnumber the interactions students might typically have in a usual face-to-face classroom and, therefore, be more involved in learning.

It is important to note that learner-instructor interaction was not common in all the top-ranked activities, which contradicts Martin and Bolliger’s (2018) findings. That is not to say the role of the instructor is not important, but it is worth pointing out that the most highly ranked learner-instructor indicators of their study could be classified as logistical or administrative. However, despite the absence of explicit learner-instructor interaction, there was still what Garrison, Anderson, and Archer (2000) categorize as *teacher presence*. Instructional management is a category of teacher presence, which includes such tasks as initiating the discussion and setting up groups. Therefore, teacher presence was valued more than teacher interaction.

Provision of feedback on their contributions. Three of the four most highly rated activities gave students the opportunity to share the whole or parts of an assignment before submitting it to the instructor. Two of these were explicitly designed as peer review activities where students had to provide feedback to one or two of their group members depending on the activity. In two of these activities, there was little to no instructor-learner interaction by design. In Topping’s (1998) review of the literature, “peer assessment appears capable of yielding outcomes at least as good as teacher assessment and sometimes better” (p. 262). The purpose of these activities was for students to evaluate other students’ work based on the principles learned in class to deepen their own understanding and receive helpful feedback before submitting the assignment formally to the instructor. That is, this was an assessment *for* learning rather than an assessment *of* learning.

Mulder et al.’s (2014) research on student perceptions of peer review through a pre-activity and post-activity peer review questionnaire found that students’ perceptions of its usefulness were positive despite dropping slightly, most notably in a first-year course, after completing the activity. However, there was no change in their perception of the competence of their peers in providing feedback, as only a small number reported concerns about the quality of their peers’ comments; however, one of the concerns students commonly identified was not being able to match the quality of review of that they received. One of the main findings was that students’ opinions about the usefulness of writing reviews of other students improved after completing the activity.

Provide personalization of content or task. All of the top-ranked activities in this study offered some form of personalization, whether it was in the form of individualized feedback in the

peer review activities, or as an element of choice in the task. This desire for customization is confirmed in Ausburn's (2004) research on perceptions of online design elements in a blended course, which found that respondents overwhelmingly ranked *Provide options for individualization/customization of learning* as the most important instructional goal from a list of 15. In her discussion of the data, she draws parallels between the phenomenon of mass customization in an information society and the expectations of students wanting the same personalized experience in higher education, and she encourages faculty and instructional designers to take note.

The concept of choice or options is not exclusive to task-based learning activities. The emerging literature on inclusive teaching practices and Universal Design for Learning (UDL) promotes the idea of providing students with choice in delivery of content and the ways in which they might demonstrate their learning (CAST, 2018). CAST (2018) suggests using multiple means of representing content, which means making it available in different formats (i.e., video versus reading). However, allowing students a choice in the content itself, such as a choice among a selection of readings on the same topic (perhaps from different perspectives), can also serve as important individualization. Participants in Martin and Bolliger's (2018) reported placing a high value on both these notions of choice.

Lowest rated activities. The activities that rated lowest both overall and in terms of engagement were readings, both scholarly and nonscholarly, and one quiz. These were all activities that were exclusively learner-content activities (except for one), and the majority of these did not require any kind of output on the part of the student. The readings, in general, were not immediately followed up by a task, and without an output on the part of the student, the purpose and depth to which they should engage might have been unclear. In other words, there was no cognitive or behavioral engagement or any of the other elements identified in Redmond et al.'s (2018) framework for online engagement. Although one reading did ask students to reflect on their biggest take away in a whole-class discussion forum, this focus on understanding (as opposed to the higher levels in Bloom's taxonomy) may not have been sufficiently cognitively engaging. This may also apply to the only quiz of the course, which emphasized only lower level understanding.

Conclusions

The following conclusions may serve as guidelines to those designing online learning experiences, such as faculty, educational developers, instructional designers, educational technologists, and IT staff who are in decision-making positions with regard to the selection and implementation of learning technologies.

These results suggest that passive online activities, such as videos and readings, are not as effective as well-structured activities that have students collaborating with or learning from other students. However, that is not to say that there is no place for readings or videos in an online environment, but perhaps more thought can be put into how to integrate the readings into other course activities or provide more customization of content to engage students emotionally.

The high scores for these peer-review-type activities suggest that students benefit from seeing and analyzing the work of others and that reviewing each other's understanding, ideas, and writing is a worthwhile exercise. While discussion forums are one way to facilitate peer review

activities, more robust and specialized tools exist and should be explored in order to better facilitate these kinds of activities.

Above all, the design of online activities should prioritize learner-learner interaction in ways that promote thinking at the highest levels of Bloom's taxonomy through social, collaborative, cognitive, and behavioral engagement.

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