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Beyond the Discussion Board: Engaging Students in Asynchronous Online Activities

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This paper explores the effective online teaching practices and activities used for an asynchronous online learning environment. During the 15-week semester, students had various opportunities to learn rigorous content while utilizing various technological tools. The course, called "How People Learn," offered diverse and exciting readings to students interested in education as a social science. We felt that the course design helped students learn effectively in the asynchronous online environment. The same course was taught online by two different instructors, yet the course outcomes were very similar. Our paper outlines the course's design and purposeful creation of active learning activities in the asynchronous online setting. At the end of the article, we recommend a series of technological tools applicable for use in similar asynchronous online courses.

This article presents a course design that incorporated rich and rigorous readings on how people learn in various settings. It integrated various pedagogical strategies along with modern e-learning tools to make the course more engaging. Furthermore, the course design allowed students to explore and foster their critical thinking skills in a digital environment. Throughout the course, students had opportunities to investigate various theoretical perspectives on how people learn. The readings offered classic and current literature for delving more into the context while implementing active learning throughout the course. Students also had opportunities to brush up their technological skills by utilizing current and useful educational technology tools. We intended to bring students beyond the low levels of Bloom's Taxonomy often associated with discussion boards and equip them with more opportunities to create, evaluate, and synthesize using educational technology.

Literature Review

Active Learning

The most conventional understanding of "active learning" is an instructional method that engages students in learning (Prince, 2004). These activities should be meaningful and should offer students opportunities to think about what they are doing (Bonwell & Eison, 1991). The benefits of active learning have been widely publicized and capitalized. For example, Hake (1998) showed that courses that included more active learning opportunities were more than two times more effective than their traditional counterparts. Freeman and colleagues (2014) synthesized 225 studies in their meta-analysis on active learning in STEM. They found that when comparing active learning environments to traditional learning environments, students in active learning settings saw an increase of 6% on examinations. Additionally, students in traditional learning environments were about 1.5 times more likely to fail than their active learning counterparts. As more and more courses are delivered electronically in synchronous and asynchronous environments, tried and true active learning approaches need to be modified to ensure authenticity (Gibson & Shaw, 2011).

Active Learning in the Online Learning Environment

Distance education is not a new teaching modality. It originated in the 19th century and blossomed in the 20th century (Dede et al., 2019), yet it became ubiquitously implemented and prevalent in the 21st century. Integrating active learning in distance education is more challenging than integrating it in a traditional classroom (Considine & Dean, 2003) due to the difficulty of replicating authentic in-person collaboration and engagement. However, active learning in the online learning environment is not only important but necessary. Digital learning documents each student's interaction with the course materials and their peers (Dede et al., 2019). Likewise, active learning allows productive collaboration among students; however, the focus here should be on learning rather than on the participating outcome (Peters & Hewit, 2010). Whereas students have more responsibilities in asynchronous learning, they have more time to collaborate with the instructor(s) and peers. Rich Environments for Active Learning (REAL) promotes and encourages students' responsibilities in active learning. Also, REAL cultivates collaboration among peers and instructors (Dunlap & Grabinger, 2000).

Context

"Introduction to How People Learn" is a course for Education as a Social Science minor students, in which they learn how educating others happens in nearly all professions. In this 15-week course, students learn how education occurs not just in schools but in nearly every

setting where people live and work — workplaces, organizations, communities, families, museums, and others. This course helps students learn to be effective educators in both in-school and out-of-school contexts. It examines effective learning and motivation processes in various learning settings, such as learning through games, learning in after-school programs, and learning through cultural apprenticeships. It also examines learning connections with issues of equity, diversity, and culture within and across these settings. Most students who sign up for this course are majoring in a non-education area, like media studies, human resources, or psychology, and choose to take this course to learn how to educate others in non-classroom settings.

We divided the course into four major parts. Students develop an understanding of critical theoretical perspectives on learning for the first four weeks of the course. This part of the course includes a strong focus on cognitive theories and seminar research on how people learn within their cultural settings. We examine the construct of intelligence as a case study to examine the applications of these theoretical perspectives. We also examine how sleep affects how people learn.

For the next three weeks, students learn about motivation by examining the core theories of motivation. They read the book *Drive* by Daniel Pink, which provides an overview of key theoretical constructs and discusses their application to workplaces. Toward the end of the chapters in *Drive*, Pink discusses Carol Dweck's work on mindsets, where we then turn to a more in-depth examination of this topic by reading some of Dweck's work on growth mindset. We conclude this part of the course by examining two cases relevant to these theories: motivation in sports and the notion of grit.

In the third part of the course, we examine learning approaches inspired by an analysis of how and why people learn as they engage in games. This part of the course starts with James Gee's book, *What Video Games Have to Teach Us About Learning and Literacy*, and builds on these discussions to consider learning through solving problems. During this time, students build a game design of their own to solve an everyday problem.

Finally, we bring many of the previously discussed ideas together in the last part of the course, learning in youth programs. Here we examine recent research and development on programs that can be implemented in after-school programs. Some of the programs we examine are classroom-based, but all could also be implemented in out-of-classroom settings such as youth organizations or after-school programs. We examine service learning, after-school programs designed to promote STEM learning, and Youth Participatory Action Research (YPAR). In this culminating section of the course, the course's learning principles discussed in earlier sections come to fruition in these programs for youth.

We house our online course in the Canvas Learning Management System. Each week in our course runs from Thursday through Wednesday. The weekly assignments mostly involve reading, some type of initial activity or contribution due by Sunday night (day four of the week), and a follow-up contribution or activity due Wednesday night (day seven of the week). We chose this way to break up the week to give students time toward the end of each week when they have fewer synchronous obligations to complete. For all weeks, students had to make their original contribution to all activities before seeing anyone else's to ensure their work's originality.

Description of Activities

The sections below outline some of the active learning strategies we incorporated into this course to bring it "beyond the discussion board." As we researched and implemented our activities, we focused on ensuring that our adult learners would meaningfully engage with the content and apply it to their settings. Where applicable, we describe research support for the methods we used and how we have adapted in-person activities to become online activities. We also include a discussion of specific educational technology used across the course that supported students' active learning of course content. As we discuss each activity, we also include our impressions based on students' informal feedback, work samples, and course evaluation feedback.

Syllabus Digital Escape

Researchers have pointed to the positive effects of using a syllabus quiz in class to engage students in visiting and understanding the syllabus (Raymark & Connor-Greene, 2002). In particular, researchers have identified some of the syllabus's essential features, such as course information, instructor information, policy information, and grading information (Doolittle & Siudzinski, 2010). In the absence of a face-to-face discussion about the syllabus to review this most critical information, extra care is needed to develop a comprehensive online syllabus that students will read and understand.

In our course, we created a "Syllabus Digital Escape," modeled after the escape room breakout games that have been popular social events for adults. The premise of the Digital Escape is to have students answer a series of questions on a Google Form related to the syllabus's primary contents, as identified by Doolittle and Siudzinski (2010). If students supply an incorrect answer, they are provided with a hint and encouragement to try again. If they supply a correct answer, they can continue to move on and try to "escape." In the online classroom, we placed additional importance on the weekly structure, expectations for making contributions

to the class, getting support, and frequency of assessment. This activity counted for a minimal number of points, but it served as a way to have students meaningfully interact with essential course procedures and policies in a game-like environment. Research on digital escape activities is evolving and currently includes recommendations for designing these activities for various settings (Kroski, 2020).

Online Critical Debate

For this activity, we modified an example of a live debate from Brookfield and Preskill (2005) to fit into the online setting. Students need to understand arguments for and arguments against controversial topics to help them fully appreciate complex issues. To encourage our online students to think critically about the prompt at hand, we set up an online debate that allowed students to contribute to both sides of an argument, read all evidence, then decide on a final opinion. For our specific activity, the topic was the use of intelligence testing to place students into gifted and talented or special education services.

By the fourth day of the module, after completing the readings for the week, students were asked to generate one reason for and one reason against the topic at hand. Students picked their reasons regardless of their initial position on the matter. Students could use the assigned readings for that week or any external research for selecting their reasons. Students then posted each reason on an online class debate website (kialo.com) and included a research citation for their reasons. From days five through seven, students had to review the reasons presented by their classmates and prepare a final opinion on the subject. We asked students to create a visual representation of their initial position, how it might have changed or stayed the same through reading their classmates' posts, and a final position. Students completed this activity by using stormboard.com and submitting the finished product as their week's assignment.

Mitchell (2019) used the debate technique in her online asynchronous social policy course and found that most students reported increased conceptual understanding of course content, improved critical thinking skills, and improved collaboration with other course members. In our classes, we observed students reasoning on a much deeper level, and many of them reported an opinion change from the start to the end of the activity as a result of their classmates' arguments.

Quotes to Affirm and Challenge

"Quotes to Affirm and Challenge" was another activity we modified from Brookfield and Preskill (2005) to fit into an online setting. Orchestrating discussions on pre-defined readings can be difficult in an online class. Some students skim the readings, some read very carefully, and some do not read at all. The quotes to affirm and challenge activity aims to promote more meaningful reading and synthesis of ideas across the course.

Our purposes for using this activity were to encourage closer, more reflective reading, have students read similar and different viewpoints on the same text, highlight parts of the text that were controversial, difficult to understand, or very impactful, and to have students purposefully make sense out of an idea by connecting previously learned content to current content. We asked students to read chapters out of *Drive*, a short book on motivation, for our implementation of this activity. We gave students four days to read and post one quote on the shared discussion space but were instructed not to share why they posted the quote they did.

We gave students the next two days to respond to three different classmates, either affirming or challenging their quotes. We asked students to speculate why their peers chose the quote they did. In their responses to their peers, we asked students to cite previous course readings on how people learn to bolster connections on previously learned material. This process of making connections offered students multiple opportunities to closely engage with different ideas and experiences. On the final day of the module, students revealed why they chose the quote they did. In their responses, we asked students to incorporate principles and theories of learning to support their rationale. This activity allowed students to critically reflect on their learning while also adding meaning to the text. In many cases, students chose quotes because they did not fully comprehend the terminology or ideas presented, which offered fertile ground for additional discussion and reflection.

Role-playing

Principle III from Universal Design for Learning talks about providing students with multiple means of engagement (Rose & Meyer, 2002). It is well-known that there is no single way to engage all learners, all the time; however, varying the activities in an online course provides multiple opportunities for student engagement. A role-play activity allows students to apply course content to their context, communicate with others, and manipulate knowledge in different ways. Role-play activities engage students in complex course content in a way that allows them to express their creativity and interpersonal skills. Role-play activities are a form of experiential learning where the student uses knowledge from class to solve a real-life problem; in fact, role-play has been used in asynchronous online classes in medical subjects to build cultural competence (Townsend, 2018).

Wills and colleagues (2011) posited that role-play expectations should be clearly articulated with evaluation criteria to ensure the most favorable learning outcomes. In our course, for the week on learner motivation, we had students read a variety of research on growth mindset, intrinsic motivation, and extrinsic motivation. By the fourth day of the module, after students had completed all the readings, we asked them to take on the role of a teacher needing help. Students had to video record themselves in the Canvas discussions tool, asking faculty at the Center for Teaching and Learning for advice on a motivation-related issue they were dealing with in the classroom. During the final three days of the module, we asked students to select one video on the Canvas discussion board and respond to the concern, pretending to be the Teaching and Learning Center Director. In their response, we asked students to use the research outcomes in the readings to address the motivation-related issue and provide actionable steps for resolving it. We then asked students to submit a written copy of their response including research citations as part of their weekly submission.

We anecdotally found that our students truly embraced the activity and took advantage of the active learning opportunity to frame appropriate responses for their peers. Through the second part of the activity and corresponding short paper submission, students were once again able to integrate theories and practical advice to solve a motivation issue in a learning setting. A visual overview of our online instructional strategies to bring students beyond the discussion board is in Figure 1.

The next series of activities rely more heavily on technology tools that students could access outside of Canvas. In this discussion, we will continue our description of activities and add feedback on the technology tool itself related to e-learning in the asynchronous setting.

Mind Mapping

Mind maps are practical educational tools that represent complex information and help students learn and better grasp the content. Moreover, mind maps are considered active learning tools (Willis & Miertschin, 2006). As the adage says, "A picture is worth a thousand words." Mind mapping's effectiveness as an active learning strategy was evident in various domains, such as in nursing programs, science education, and history subjects (Rosciano, 2015; Safar et al., 2014; Salleh & Ismail, 2013). Mind mapping techniques have been assigned to college-level students as an alternative to traditional lecture note-taking. Likewise, mind maps have been successfully used for identifying research topics among undergraduate health education students. This approach helped assist students in collaborative learning and critical thinking (Kernan et al., 2018). Similarly, concept maps were effectively used with undergraduate college students to create scientific models to demonstrate ecological complex processes (Aghekyan, 2018).

For our course, we used the following three online mind map programs: Popplet, Stormboard, and Miro.

Figure 1

Instructional Strategies Used in the HPL Course

Whereas each of them has its unique interface and navigation system, the logic behind these three technological applications was the same. If we rank these apps' difficulty level, Popplet was the least difficult, Miro was the most challenging, and Stormboard was average. However, all three of them allowed the users to break down the complex information and deliver it more simply. These are great tools for generating and brainstorming ideas, and, therefore, they help foster students' creativity and increase students' critical thinking.

Popplet can be used as an online planning and organizing tool and in conjunction with scaffolding techniques (Cendros Araujo & Gadanidis, 2017). Stormboard is an online whiteboard, which makes brainstorming and collaboration easy and effective. The digital sticky notes of Stormboard serve as excellent tools for students' digital projects. Literature states that Stormboard was used as a real-time collaboration application for facilitating group interactions to improve problem-solving effectiveness (Takouachet et al., 2014). Miro software is an online mind map that allows live collaboration and is perfect for group digital presentation. We found Miro more complex than the other two mind maps, although it offered more options than the other two mind maps. Miro was used to help our students learn how to read academic articles. Students' autonomy was fostered by offering them a choice of Miro format they would prefer to use.

Students used the Popplet mind mapping and brainstorming tool to map their understanding of intentional participation. In this activity, students illustrated their experience in intentional participation by using terminology and concepts from the readings to describe the setting, the context, the purpose, the role of the learner and the teacher(s), the motivation of the learner, and how learning can be assessed in the process of intentional participation.

Stormboard's virtual brainstorming platform's innovative and colorful "sticky notes" were used to explain students' final position about intelligence tests as described in the critical debate section. Moreover, students were asked to provide theoretical and research support to articulate their position. Students were able to use any Stormboard style that matched their interests and presentation style.

We used Miro's collaborative whiteboard platform to help students to get better at reading academic articles. This activity helped students to understand how to read and dissect scientific articles. After selecting their desired board, we instructed students to break down a research article into its parts (such as introduction, research questions, literature review, data analysis, and conclusion) and organize their information in Miro's interactive whiteboard. This experience and visual allowed students to better understand an academic article's flow and how to build support for an argument.

Infographics

We also used infographics in our course to engage students in online learning. Infographics are considered to be useful tools. Infographics can easily persist in people's minds, and they are recommended for use in traditional lecture courses to help students organize and consolidate information (Ozdamlı et al., 2016). We realized that both Canva and Venngage were practical educational technology tools for making students' learning visible and adding an interactive component to the text-based information and logically organizing their information. For example, after delving into the successful problem-based learning (PBL) technique and productive failure (PF), students were asked to make an advertisement about PBL or productive failure on Canva. This activity allowed students to analyze and evaluate their knowledge about these two topics and fostered their critical and creative thinking skills. Students' autonomy was enhanced by giving them a choice of design to choose for their advertisement. We asked students to explain their understanding of PBL or PF in the form of an advertisement aimed at attracting many teachers to encourage them to utilize these techniques in their practice. We felt that Canva made learning more fun and enjoyable.

We also asked students to identify one quote related to how people learn from assigned chapters that they found interesting. Students used Venngage as a visual storytelling tool to design a story behind a quote from Gee's chapters. This activity allowed students to communicate their favorite quote clearly and creatively. Likewise, it made learning fun and engaging. Interestingly, every student proposed a unique quote and designed it accordingly.

VoiceThread/Google Slides Collaborative Presentation

The benefits of collaborative and cooperative learning have been supported thoroughly in the literature using various theoretical perspectives (O'Donnell & O'Kelly, 1994). Incorporating collaborative small group activities in the online setting can be challenging, especially in an asynchronous course. VoiceThread is an asynchronous, online cloud-based program that allows students to connect virtually, sharing voice, text, and video. The VoiceThread platform, combined with Google Slides, offers a way to blend collaboration and individual presentation.

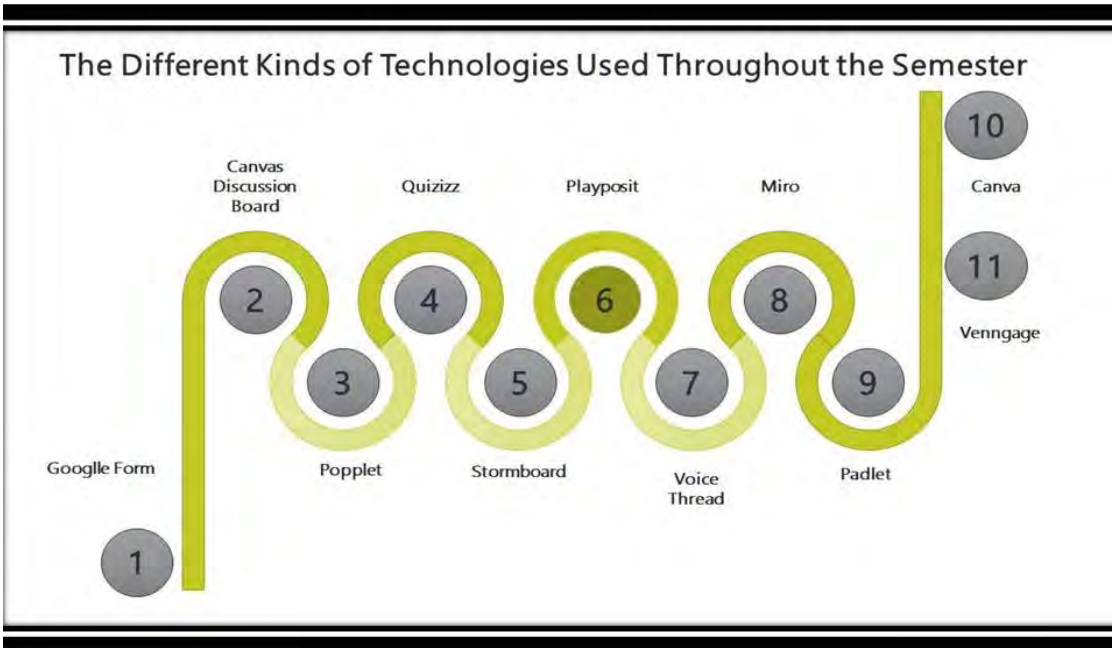
Students had prior experience using VoiceThread during the first week of our course when we had them provide a video introduction of themselves using the

platform. In our module on grit, we asked students to read articles on grit and the athlete-coach relationship. Then, they had to create a group presentation that either supported or challenged the notion of grit. By day 4 of the module, students had to develop a collaborative Google Slides presentation that a coherent message. Collaboration was stressed so that the presentations would not be disjointed contributions of slides. Then, over days 5 through 7, the group leader (self-nominated) uploaded the Google Slides to Voice Thread. Students were then responsible for providing a voice narration of the slides they contributed. The result was a group project where everyone contributed virtually, and everyone also had a chance to "present." The VoiceThread platform also houses all of the presentations in a gallery-type layout so all students in the class could see the other group projects.

Our students found the combination of Google Slides and VoiceThread to be a seamless way to showcase shared thoughts and research-based recommendations. Joiner and Patterson (2019) also found that students in a social work program who used VoiceThread found it useful in engaging with other class members, helpful for learning course content, and led to improved communication skills. A visual overview of the educational technology we used in our course is provided in Figure 2.

Figure 2

Summary of Educational Tools Implemented Throughout the HPL Course



Conclusion

Our paper highlighted a sampling of some of our most popular and meaningful online learning activities that took students beyond the traditional discussion board post. Our activities took students to higher levels of Bloom's Taxonomy, where they had to actively apply knowledge, analyze readings, evaluate arguments, and create products that showcased their understanding. As educational technology continues to evolve, we will be actively looking at ways to use the tools available to replicate meaningful learning in the asynchronous online setting.

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