# Improving Online Discussion Boards: What Do Students Say?

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**Abstract**

Asynchronous online discussion boards are a primary tool for instructors to cultivate social and cognitive presence in an online classroom. This article investigates the undergraduate student experience with remote learning during COVID-19 with the intent to examine the purpose and structure of online discussion boards. Researchers used semi-structured student interviews and student course evaluations to analyze learner perceptions of online class discussions. Though the goals of discussion boards are to provide a space for learner to learner interaction and to enhance critical thinking skills, discussion boards often fall short of these intended outcomes due to discussions feeling repetitive and artificial. Findings indicate that long-held traditional practices can be improved with different strategies; students value opportunities to ask questions and have choice. Reimagining the structure of online discussion boards can increase engagement and deepen learning.

*Keywords:* online learning, remote learning, asynchronous discussion boards, student choice, Community of Inquiry

## Introduction

With the arrival of COVID-19 during the 2019-2020 school year, instructors of traditional undergraduate students everywhere had to step into a form of remote education. Instructors shifted from a fully face-to-face classroom setting to remote learning, including fully asynchronous online classes, cohort model asynchronous classes, hybrid classes, and virtual sessions (Awal Kurnia et al., 2021). Because of COVID-19, instructors received a crash course in teaching remotely. Through this experience, educators and institutions alike developed a greater understanding of how virtual learning worked well and where it needed improvement. Reflection on these remote learning experiences provided the opportunity for educators to examine best practices in online education.

As educators strove to maintain some type of social presence threaded through their remote classrooms, discussion boards were a primary tool to create interaction and academic discourse. According to Mooney et al. (2014), a standard asynchronous online discussion board consists of the instructor giving an assignment, materials, initial instructions, and a timeframe to learners; learners make threaded postings on a course discussion board in response to the instructor prompt. In Spring 2020, traditional undergraduate students, accustomed to in-class discussions, were, often for the first time, navigating wholly online classes with asynchronous discussions. This dramatic shift raised questions among students of the value and structure of online discussion boards. Even prior to the arrival of COVID-19, online discussion boards were an integral and continuous practice used to promote student-to-student and student-to-teacher interaction around content within online education (Douglas et al., 2020). A close inspection of the widespread use of discussion boards in the unique context of learning during COVID-19

highlighted areas where improvement could be made and new approaches utilized within the context of traditional online learning.

When exploring the effectiveness of online discussions, an often overlooked trove of information is the learners themselves. The learner perspective, especially in a situation that was unexpected and unprecedented, allowed educators to experiment with existing online practices. Although in online learning there are many areas worth considering, such as structure, expectations, instructional resources, and online instructional strategies, this paper focuses on the learner experience with online discussion boards. Understanding learner perspectives can highlight effective online discussion board practices and how those practices increase engagement and deepen student learning (Ebrahimi, 2017; Jacobi, 2017; Kimbrel, 2020; Swan, 2001).

Prior research on learner perceptions of online discussion boards focused on online courses offered under normal circumstances, taken by learners who chose to enroll in an online course, and taught by instructors who volunteered to teach online (Aloni & Harrington, 2018; Cole, et al., 2014; Jacobi, 2017). Previous studies focused on discussion boards that were developed intentionally, with thought given to the structure and prompts. In contrast, learners and instructors who were suddenly thrust into a remote learning context because of COVID-19 approached online discussion boards differently than discussions found in typical online courses. Usually, asynchronous online discussions involve an instructor prompt and student responses to both the prompt and other students' replies. As such, unique insights can be gained from a closer examination of the perceptions of learners and instructors as they navigated learning during COVID-19.

The widely influential Community of Inquiry model (Garrison, 2009) outlines three interdependent elements in the online learning experience: teaching, social, and cognitive. The teaching element is the structure, content, and culture designed by the instructor (Anderson et al., 2001). The social element is the learner's ability to identify with the class community, build interpersonal relationships, and be authentic to their individual personalities (Garrison, 2009). The cognitive element, which entails critical thinking, is the extent to which learners construct and confirm meaning of course content through dialogue and reflection (Garrison et al., 2001). Online discussion boards are an exemplar practice that encompasses all three elements of the Community of Inquiry model: the instructor structures the discussion board (instructor interaction), students interact with one another (social interaction), and students think critically about course content (cognitive interaction) (Garrison et al., 1999; Swan, 2001).

Bloom's Cognitive Taxonomy, first published in 1956 and revised almost 50 years later, has been used by educators to engage cognitive presence by shifting learners into higher order thinking skills (Anderson & Krathwohl, 2001; Bloom, 1956). As a categorization system for cognition, the revised Bloom's Taxonomy "is a two-dimensional framework consisting of the 'knowledge dimension' and the 'cognitive process dimension'" (Milman, 2020, p. 64). As such, although Bloom's Taxonomy can be applied to social interactions, its primary focus is the cognitive process.

Learner reflection on remote courses during the COVID-19 pandemic can inform us of experiences and practices. The lessons learned are applicable to online course design. In this study, researchers conducted in-depth interviews with students and kept copious interview field notes consisting of student quotes and observations. Researchers analyzed the student interview field notes and course evaluations to capture both learner satisfaction and difficulties in trying to

participate in online class discussions. Students interviewed were asked questions about their experiences with remote online learning. Student responses in the course evaluations explored what was satisfactory or unsatisfactory during the remote experience. Responses from both the interviews and the course evaluations reflected experience with a variety of content areas. The primary themes that emerged were interplays between cognitive, social, and teaching presence. Discussion boards were the most consistent and concrete example of this interplay. The sample of learners and the experiences they described differ from prior studies of learner experiences with online discussion boards. During remote learning, neither the learners nor the instructors initially intended these courses to include online class discussions.

Insights emerged through the interview and evaluation processes. Discussion boards were the primary tool used to replicate in-class discussions and to create social interaction among the learners and the instructors. In the interviews and course evaluations, learners reflected on the discussion board experience. Emerging from these interviews and evaluations were observations about why learners see discussion boards as challenging and insights about how discussion boards could be better structured to increase engagement and deepen learning. The research revealed two reasons why traditional discussion boards failed to foster engagement and learning and two themes suggesting how instructors could create online discussions with the potential for increased social and cognitive presence.

## Review of Relevant Literature

### Community of Inquiry

The framework of a Community of Inquiry, comprising three constructs, cognitive presence, social presence, and teaching presence, was first developed by Garrison, Anderson, and Archer in 1999. According to Garrison et al. (1999), cognitive presence is the “extent to

which the participants in any particular configuration of a Community of Inquiry are able to construct meaning through sustained communication" (p. 89). Social presence pertains to how a participant is able to share their true self with other participants, and teaching presence concerns the design and facilitation of the online experience, the second of which can be shared among learners and instructors alike (Garrison et al., 1999).

Each element of the Community of Inquiry framework has been studied and researched separately, but it is important to note the dynamic relationship that exists between the three (Garrison et al., 2010). A critical component of creating a Community of Inquiry is course design and delivery. Online pedagogy differs from face-to-face; faculty cannot simply insert their lectures and questions into an online platform (Woldeab et al., 2020; Jacobi, 2017; Kimbrel, 2020). A fully developed online course is designed substantially differently from courses offered online as the result of emergency remote learning, with different learner experiences (Hodges et al., 2020; Shim & Lee, 2020). Desai et al. (2009) assert that "instructional design...is one of the single most critical factors in successful online teaching and learning" (pp. 331–332).

Bloom's Cognitive Taxonomy, including its most recent revision, provides a framework for considering the type of thinking and learning that occurs within a course (Darabi et al., 2011). While the lower levels of the revised taxonomy, remembering, understanding, and applying, can be achieved individually, without social presence, "moving up to the analysis, synthesis and evaluation levels brings us to the need for social perspective. This is often acquired through group and networked interactions" (Anderson & Dron, 2011, p. 10). The analysis, synthesis, and evaluation levels of Bloom's Cognitive Taxonomy are more aligned with cognitive presence as they can be processes through which participants use interaction to construct meaning, but they

are dependent on the structure and leadership of instructor presence (Garrison & Cleveland-Innes, 2005).

## The Role of Discussion Boards in the Community of Inquiry

Online discussion boards are one of the most commonly used methods to incorporate the elements of the Community of Inquiry into each type of online learning modality (Jacobi, 2017; Swan, 2001). Examining how instructors can concretely increase student engagement and learning through discussion boards is relevant to the evolving dynamics of the current educational paradigm (Mooney et al., 2014; Ebrahimi et al., 2017). Online discussion boards, intentionally developed and facilitated, are a key aspect of creating social interaction and deepening learning and thinking in the online course environment (Authors, 2020; Swan, 2001).

## Traditional Approaches to Discussion Boards

A typical online discussion board consists of the instructor giving an assignment, materials, initial instructions, and a timeframe to learners; learners are asked to use the materials provided and make threaded postings on a course discussion board (Mooney et al., 2014). This type of typical, online, asynchronous discussion board has been identified as a functional tool for creating learner interaction and addressing critical thinking skills (Aloni & Harrington, 2018). In contrast to the intended purpose of discussion boards, "lack of interaction" was identified as the most cited reason for dissatisfaction with online courses in general (Cole et al., 2014). If learners do not engage in the discussion boards well, the desired outcomes, cognitive and social interaction, are unlikely to occur. According to an analysis of the relevant literature by Hew et al. (2007), a few antecedents that affect learner contribution are lack of clear expectations, learners not seeing a reason to contribute, lack of responses from other learners, and lack of instructor feedback or involvement. Further, some learners did not feel compelled to think more critically;

they were content to just answer the question. The type of question posed in a discussion board impacts the level of interaction, interest, and learning that occurs within that discussion (Mooney et al., 2014).

## Learning by Asking Questions

Effective educators operate with the understanding that learning happens when learners are engaged and participating in the learning process. Questions provide an avenue for interactive communication, which leads to learning (Morgan & Saxton, 2006). There are two sides to this coin: the questions asked by the instructor and the questions asked by the learners. Morgan and Saxton (2006) address the cognitive value of the questions generated and posed by learners. Without instructor leadership structuring the prompts, interactions, feedback, and opportunities for learners to ask questions, the cognitive and social intentions of the discussion board may not be realized (Garrison & Cleveland-Innes, 2005).

From a young age, learning occurs through asking many questions (Morgan & Saxton, 2006). Although discovery and experimentation are part of the learning process, for humans, much learning is from others; a question is asked and the answer is given (Harris, 2012). Questions are a means by which learners can actively process, think about, and incorporate concepts and information productively (Hunkins, 1995). Within the educational setting, instructors can be intentional about creating a context where learners are able to generate questions or pose problems. Learner-generated questions, or problem posing, can impact cognitive processes, facilitating deeper thinking and learning and reinforcing thinking at higher levels of Bloom's Cognitive Taxonomy (Brown & Walter, 2005; Yu & Liu, 2009).

### Learning Through Choice

Providing choice is a key element in increasing student intrinsic motivation to engage in learning (Evans & Boucher, 2015). The foundational underpinnings for understanding the value and power of choice are seen in self-determination theory (SDT) (Deci & Ryan, 1985; Deci & Ryan, 2000). According to self-determination theory, human motivation is significantly impacted by innate psychological needs for competence, autonomy, and relatedness (Deci & Ryan, 2000). Providing choice, thereby enhancing autonomy, increases intrinsic motivation (Deci & Ryan, 2000; Flowerday & Schraw, 2003; Saeki & Quirk, 2015). According to Rose and Meyer (2002), choice in content, methods, and materials, giving thought to relevance and interest, is an extremely successful teaching technique.

## Research Questions

The study was designed to address two research questions:

1. What were undergraduate students' perceptions of online discussion boards during emergency remote learning?
2. How can instructors structure online discussion boards to increase social, cognitive, and instructor presence?

## Methods

### Instrument

This study was a retrospective study using ex post facto data. Researchers used student evaluations and semi-structured interviews to capture the perceptions of undergraduate students about remote learning experiences for the initial purpose of developing faculty professional development. Qualitative data on learner experiences was collected using the research site's course evaluation software, SmartEvals. The SmartEvals student evaluation survey used

qualitative questions to gather information about what went well and what improvements could be made if remote learning had to occur again in the future. The student interviews investigated in more detail how instructors structured courses and identified instructional areas for improvement during remote learning. Researchers then reanalyzed the data to investigate the use of online discussion boards during learners' emergency remote education experiences. The researchers defined online discussion boards as asynchronous forums where learners were asked to discuss course content and engage with one another. Researchers excluded synchronous course discussions that used video conferencing tools from this analysis of online discussions.

The data used for this study were accessible and available to the researchers as it was a retrospective study. The research site's institutional review board fully approved this study. The course evaluation data was existing data, and participant consent was not required. The students interviewed consented to being interviewed.

The survey in the student course evaluations included two open-ended questions related to learners' experience with remote learning in the spring 2020 semester. This study used the following two questions from the course evaluation dataset: 1) "Following the transition to remote learning, what worked best for you in this course?"; and 2) "What, specifically, would you suggest the instructor change if he/she were to teach this class again remotely in the future?" These questions were added at the end of the research site's standard course evaluation survey.

Researchers used a semi-structured interview format to explore what went well during remote learning and where instructors could improve if they had to be remote again. All interviews included these questions: 1) "How did you learn the best during the last 3 months?"; 2) "What worked really well in your classes?"; 3) "What was particularly challenging for you during the last 3 months?"; 4) "What would help you learn better?"; and 5) "What

recommendations would you have for class in the future?" Students were asked follow-up questions based on their responses to the initial questions. IRB approval was obtained to examine the data included in this study.

## Sample

The SmartEval student evaluations, which included two remote learning questions, were administered to all students enrolled in classes that had switched to emergency remote learning in the spring 2020 semester. Students were asked, but not required, to complete course evaluations at the close of the spring 2020 semester; hence, participants self-selected to contribute their experiences with remote learning. All students were aged 18 and older, were enrolled in undergraduate courses, and finished the course by learning at a distance. Of the 1,966 responses to the course evaluations, there were 1,115 responses to the two open-ended questions related to remote learning. This data set was further narrowed to responses related to online discussion boards or class discussions, for a final sample of 217 open-ended responses. The sample largely represented a traditional undergraduate student body, with 91% of the respondents aged between 18–24 years old and the remaining 9% of students aged 25 and above. Participants represented 18 areas of study across all disciplines offered at the research site.

The student interviews were conducted with 10 undergraduate students. The sample consisted of four males and six females. These interviews were conducted while the campus was closed and participants were not easily accessible. Researchers used convenience sampling to recruit student participants. Nine of the 10 interviews were conducted in person. One interview was conducted via telephone. The location of the interview was based on the participants' comfort level with meeting in person. At the time of the interview, the participants included one first-year student, one sophomore, four juniors, and four seniors. All students interviewed were

aged between 18 and 24 years old. Their majors were computer science, biology, elementary education, music education, nursing, psychology, political science, business, and English.

## Data Analysis

The data used for this study were accessible and available to the researchers as a retrospective study. This study used existing course evaluation and interview field notes to investigate learner experiences with online discussion boards during emergency remote learning. The student evaluation data was analyzed using Lichman's (2012) "Three C's of Data Analysis" for identifying codes, categories, and concepts related to online discussion boards. Two researchers independently conducted analysis of the course evaluations and then compared final concepts to validate and establish one set of concepts. Total code counts were generated by counting the number of times participants' comments corresponded with that concept.

The two researchers' field notes from the interviews were also analyzed for observations and student quotes related to online discussions. The researchers co-conducted the interviews and kept separate field notes. At the end of each interview, researchers debriefed key findings and strategies the interviewee described. Researchers compared individually documented findings among themselves in order to validate and document the consistency between the researchers' field notes. Field notes were analyzed for student interviewee perceptions of online discussion boards.

## Limitations

Several limitations of this research should be acknowledged. First, as a retrospective study, the researchers did not design the course evaluation questions or interview questions to specifically investigate student experiences with online discussion boards. This focus came about through the researchers' observations during the student interviews. Some follow-up questions in

the interviews were targeted for online discussion boards, but this was not the primary focus when the researchers collected the data for this study. Secondly, this data was collected after students' early and relatively brief experience with remote learning. Students had approximately four weeks of remote learning at the end of their semester. Given that these student perceptions were garnered after an experience with emergency remote learning, their perceptions of remote learning may have evolved as they gained more experience and comfort with this new modality of learning. Further, students' experiences may have varied depending on their instructors' prior training and familiarity with asynchronous online discussion boards. Lastly, students' prior experiences with online learning were not explored. Experience and comfort with learning in an online environment could influence their perceptions of a remote learning experience. Their opinions of online discussion boards could reflect experiences with prior fully online courses.

## Results

The analysis of the course evaluations and student interviews brought forward the following five concepts: 1) students understood and validated the importance of class discussions; 2) traditional discussion boards lacked authenticity in comparison to face-to-face discussions; 3) discussion boards seemed repetitive; 4) students wanted a place to ask questions; and 5) students liked having choices embedded in discussion boards. The student evaluations asked two questions regarding student experiences with remote learning. The first question, “Following the transition to remote learning, what worked best for you in this course?” had 133 responses from students related to discussion boards or class discussions. The second question, “What, specifically, would you suggest the instructor change if he/she were to teach this class again remotely in the future?” had 84 responses relating to discussion boards or class discussions. In the student interviews, nine out of the 10 students specifically shared information

about the use of discussion boards during remote learning; however, all 10 interviewees mentioned wanting more social or cognitive interaction with peers.

The researchers counted the number of times the main concepts appeared in the course evaluations and student interview field notes. See Table 1 for the constructed concepts that were most notable in the results.

**Table 1**

*Constructed Concepts*

| | Student Evaluations | | Student Interviews | |
|---|---|---|---|---|
| Concept | Frequency of Codes | % | Frequency of Codes | % |
| Authenticity of Discussions | 71 | 33 | 8 | 80 |
| Discussions Were Repetitive | 17 | 8 | 6 | 60 |
| Liked Learner Choice | 18 | 8 | 7 | 70 |
| Opportunities to Ask Questions | 56 | 26 | 10 | 100 |
| Valued Learner Discussion | 188 | 87 | 7 | 70 |

Student evaluations $n$ = 217, Student interviews $n$ = 10

## The Value of Discussion Boards

The first concept that appeared in the course evaluations and student interviews was that learners valued the role of discussion boards in their educational experience. This concept was prominent in both course evaluations and student interviews. Students mentioned the importance, value, or need of class discussions or discussion boards in 87% ($n$ = 217) of the course evaluation responses. Additionally, seven out of the 10 students interviewed highlighted the

value of class discussions during remote learning. Learner satisfaction with the format or interaction of the discussion did not decrease their perceptions of its usefulness for learning.

Students responded positively about having the opportunity to have online discussions during remote learning. They expressed that they valued having class discussions via live video conferencing, small group discussions, or an online discussion board. Statements similar to "I really loved the transition of our typical in-class discussions to online discussions" and "Recorded video lectures/podcasts with associated discussion boards were very helpful" were frequently repeated in the course evaluations as positive examples of how students valued discussion boards. In the student interviews, students appreciated opportunities to discuss content with the instructor and peers. Statements such as "Discussion boards are huge. They [discussions] are helpful to stay connected" emphasized the importance of connection and interaction during remote and online learning. In both the evaluations and the interviews, the majority of students identified that in-class discussions and activities were replaced by either synchronous video discussions or online discussion boards.

Students who did not have class discussions during remote learning expressed that they would have liked that opportunity. In the course evaluations, statements like "I wish that some more discussion boards were included, this way one could feel like they are still staying engaged in conversation with those in the class" and "It was particularly challenging to stay motivated when we were not meeting as a whole class" represent student sentiments that they valued the in-class discussion portion of the class and missed it when it was not present online. In the interviews, particularly when asked for recommendations for remote classes in the future, students expressed the need for a place to discuss course content. Student interview statements such as "This was a discussion-based class. And that [discussions] got lost during remote when

there were no discussion boards" and "It turned into read this, take a quiz, and no interaction with anyone else. No discussion boards. No Zoom meetings. I lost all motivation. I felt like I wasn't achieving anything" supports that students found value in having course discussions. When discussions were missing from their remote learner experience, students noticed and wanted that interaction.

### Discussion Boards Lack Authenticity

The second concept that appeared in the data was that learners felt online discussions were not as authentic as in-person class discussions. Of the 217 course evaluations that referenced discussion boards, 33% of students commented on the authenticity of discussion boards. Question one on the course evaluations addressed what went well in online learning. Of the 133 students who responded to this open-ended question, 28% commented positively on the authenticity of discussion boards. Question two on the course evaluations addressed recommendations for changes, and of the 84 students who responded to this open-ended question, 40% of the responses commented on the lack of authenticity in discussion boards. Statements regarding authenticity from the first open-ended question can be represented by statements like "I think the discussion boards worked well. It is no substitute for real interaction but it helped me remember there were others doing the same things I was" and "Even though the group responses weren't like how they were in class, I liked that we still had that chance to participate in a discussion." Both statements comment on the inauthenticity of an online discussion in comparison to in-person discussions but include the value of the online discussion. Statements that were more critical of the inauthenticity of online discussions included sentiments like:

> The discussion board especially was like having to write mini papers every other day. I get that it was there to help the professors to make sure we were reading and understanding the material, but it just took a lot of time.

In certain courses, the discussion boards were not facilitating discussion but felt like an assignment. One student did not believe their peers cared about the discussion, which contributed to the inauthenticity. They said, “The discussion boards were tricky because not everyone would post until late Saturday night. I don't want to be up early Sunday morning writing replies to my classmates who didn't care about the assignment.” Students valued discussions, but some approaches to online discussions did not feel as authentic as in-person discussions.

The student interviews also connected to this concept, with eight out of 10 students reflecting on the authenticity of online discussions. A student noted that unlike face-to-face discussions, students are not trained to return and follow up with online discussions. They stated:

> Generally, you don’t look at all the posts. You look at the ones you are going to respond to. The reason I don’t feel interested to read all the others is I know they [classmates] are not there. The other person will not necessarily respond or answer the question.

While learners might not respond to everything in a live discussion, they are engaged with what others are saying in order to decide when to engage. Another student commented on disliking the requirement in discussion boards where one has to post first before seeing other students' responses. They described that in class, one gets to hear what other students are saying before contributing to the discussion. Post-first seems inauthentic for a discussion.

Multiple students suggested breaking online discussions into smaller groups to make the experience more authentic. One student recommended, “Maybe try to facilitate a few group/pair video chats so that learners can engage in discussion that goes beyond what traditional discussion boards allow for.” Another student requested:

> The discussion board posts are fine, but in-person discussion can't be beat. I'd recommend having students pair off and video chat themselves for part of the class time so that students talking would be structured into the now-digital course.

Smaller groups and a variety of video and written discussions helped learners engage in authentic discussions online.

### Discussion Boards are Repetitive

Another concept that emerged was that learners found online discussions repetitive. This concept was highlighted in the interviews more than the course evaluations. Only 8% ($n$ = 217) of the course evaluation responses spoke to repetition in online discussions, while 60% ($n$ = 10) of interviewees referenced the repetitiveness of discussions. Some students described the number of discussion boards as repetitive, as seen in this statement:

> Please minimize discussion boards when possible. I would rather have a couple integrated questions in the Nearpod as opposed to more discussion boards. When we switched online a lot of our courses added discussion boards and it was a bit of a death-by-discussion-board!

Another student said, “Sometimes all of those discussion posts started to feel really redundant to fill out.” Other students remarked that reading each post felt repetitive. One student interviewed insightfully noted that a professor would not expect each student to come into a classroom and give a 200–500 word monologue about the same reading. Students consistently reported that completing multiple discussion boards each week, while responding to the same reading and prompt within each one, feels repetitive.

### Learning Is Asking Questions

Similar to their recognition of the value of class discussions, students expressed the concept of valuing opportunities to ask questions and felt that they learned by asking questions. In the course evaluations, 26% ($n$ = 217) of responses referenced asking questions. All 10 interviewees described wanting more opportunities to ask questions or appreciated the instructors’ responsiveness to questions. To students, discussions seemed like a natural place to ask questions and get clarification on the content. Students in the course evaluations expressed

the concept of learning by asking questions with statements such as “It was beneficial to be able to quickly clear things with the instructor without too much hassle.” In the interviews, students identified that they liked being able to ask questions and get a timely response to those questions. For example, in one course, learners were invited to post questions about a recorded lecture and they knew their instructor would post responses by the end of each day. One student interviewed said the following:

> Discussions under the videos are more natural, genuine, and authentic because if you have a question, you can actually ask a question. You don’t come to class ready to prove that you read, you come to class to ask questions and learn what you can’t learn from reading/watching. You learn from your peers and instructor.

Providing students opportunities to ask questions motivates them to watch lectures or read course materials, ask for clarification when needed, and engage in a more authentic discussion with the instructor and their peers.

### Learners Valued Choice

The last concept that emerged in the course evaluation and interview data was that students valued choice in discussion boards. This concept was not seen as prominently as other concepts, but it was important in imagining how the structure of discussion boards could improve. Only 8% ($n$ = 217) of course evaluation responses referenced student choice in discussion boards and seven out of 10 interviewees referenced choice in describing their experience. The concept of choice was seen in different ways. Students valued being able to choose when they could complete the discussions; they also valued having choices in how they completed those discussions. Students liked the predictability of discussions and due dates so they could choose when to prepare for the discussions, complete them, and move on to other coursework. They liked the flexibility of completing the discussion throughout the day instead of having a set class time with a synchronous video discussion.

When describing how to complete online discussions, students liked having choices in what they read to prepare for the discussion board and choices in how they could engage in the discussion. One student said, “Give me choices of… resources, and [have me] do one of those options.” In one class, students were given a variety of eBooks and articles from which to choose. This approach made the discussion less repetitive and brought multiple perspectives to the conversation. In another class, students had to read and research independently from different sources, then identify five things they learned. Since they researched from a broad range of sources, students could learn from what others had learned as well as from their own research experience. Finally, some instructors had student choice in how students earned grades. As one student described in the interviews, the discussion boards seemed more personalized when students could choose how to earn discussion points each week. The course had a specific number of points available; students could earn seven points for original posts and three points for each reply. Students could choose how to engage in the discussion to earn full participation points.

## Discussion

A much greater number of students and faculty used and experienced online discussion boards in the spring of 2020 than before the pandemic because of the sudden, widespread shift to a virtual learning environment. Through in-depth student interviews conducted following this unanticipated shift to a virtual learning environment and through examination of student course evaluations, these researchers closely examined students’ perceptions of online discussion boards during remote learning. From these student interviews in conjunction with an analysis of student course evaluations, a trend emerged regarding student perceptions of discussion boards. An important goal of online discussion boards is to enhance social and cognitive presence. Online

discussion boards did not cultivate social interaction or help students think on deeper levels to the degree that they were intended to do; instead, some students found them to be artificial and repetitive. Students recognized the value of discussion boards and their importance to the learning environment, and the interviews unearthed themes suggesting how instructors could structure online discussion boards to be more engaging, interactive, and focused on deepening student learning. The two themes that surfaced regarding how to better create and use discussion boards were that students believed they learned better by asking questions and students were more engaged as learners when given choice. From these themes, we identified strategies that can help guide educators as they use asynchronous online discussion boards in their online classes.

## Why Students Don't Like Traditional Discussion Boards

Why don't students (and often faculty) like the traditional discussion board? For many students, traditional asynchronous discussion boards seem artificial. Students explained that traditional discussion boards did not feel like in-class discussions. Instead, students saw them as pointless; they did not help their learning. One student interviewed said, "I don't like them… I just throw a bunch of junk out there to meet the word count. I dread doing them. I don't get a lot out of them." Another student said, "it all seems very artificial, you have to meet a quota, it's not a genuine discussion." Another student noted that he did not feel interested in engaging in the discussions because he believed it unlikely that his classmates really cared to dig deep. He said, "The others will not necessarily respond or answer the question. There is no back and forth. There is no give and take." Most students, in recounting their traditional discussion board experiences, bemoaned them as inauthentic; online discussion did not match what they experienced in the classroom.

Interestingly, another student said he disliked having to post before he could see other students' posts because this created an even more artificial discussion. In an in-class discussion, students usually get to hear from their peers prior to contributing. According to one interviewee, "posting first is not a discussion." Many students felt the disconnect between the intention of the discussion board, that of promoting social and cognitive presence, and its actual functioning.

Another reason students disliked the traditional discussion board is that the posts felt repetitive. In many traditional discussion boards, everyone responded to the same question(s) using the same source material. One student said, "[Discussions] became more of an assignment than a way to engage with the material and my classmates." Results from student feedback indicated that even with a deep and rich open-ended prompt, students encountered similar initial posts and replies from their peers. As one student told us, "when you all read the same thing, it is hard to come up with new content to motivate the discussion." Students expressed dissatisfaction with discussion boards, because even if students' posts reflect critical thinking, when all the students write about the same thing, the repetition stifles engagement and interaction. Structure created through instructor presence can impact the social and cognitive learning that takes place in online discussion boards (Garrison & Cleveland-Innes, 2005). Instructors can structure discussion boards in a variety of ways to reduce repetitiveness and offer learners choices (Prudhomme-Généreux, 2021).

## A Different Approach to Community of Inquiry in Online Discussions

Within the semi-structured student interviews and student course evaluations, students identified "bright spots" in discussion boards that facilitated their learning. Key ways that instructors structured discussions and interacted with them provided the cognitive presence and social presence that students desired from discussion boards. In analyzing these "bright spots,"

two key themes emerged. The first was that according to students' perception, learning involves asking questions; this theme is strongly confirmed in research (Hunkins, 1995; Morgan & Saxton, 2006). Students need clear opportunities to ask questions, and they need to have their questions answered in a timely manner. The second was that there is great power in student choice; student engagement and perceived relevance of the material increased with choice. Students valued choice in readings and prompts, choice in how they interacted with the discussions, and choice in how they earned their grade in the discussion.

**Learning Is Asking Questions**

Student metacognition was demonstrated during the interviews, specifically in the area of question asking. This was highlighted by the contrast between students' learning within the face-to-face classroom and within the remote or online classroom. Students' awareness of how they learn best emerged because of the stark shift from a discussion-based classroom to an online class with discussion boards. During remote learning, the absence of the ability to ask questions during class lectures and discussions was significant. One student commented, “learning is asking questions.” Students valued the authentic and real-time questions and discussions that occurred in the face-to-face classroom.

**Provide Clear Opportunities for Students to Ask Questions**

Students desire and need ample opportunities to ask questions. Research demonstrates that questions provide a path to interactive communication, which leads to learning (Morgan & Saxton, 2006). Discussion boards can be structured to provide these spaces. One approach that provided students an opportunity to ask questions was to add a discussion board under a video lecture in which students could post questions and comments about the lecture. As one student stated, “Discussions under the videos were more natural, genuine, and authentic because if you

have a question, you can actually ask a question." In this design, the instructor could view and monitor the questions and comments and respond to any questions posed. Students were also able to respond to one another with thoughts, answers, or follow-up questions. Students who experienced this approach found it beneficial and conducive to learning.

Another way to provide students opportunities to ask questions was to create a class question and answer (Q&A) discussion board each week; doing so set aside a clear space for students to ask questions that related to current course content, course structure, or other topics. Instructors used a weekly Q&A board, focused on the content of the week, for both social and cognitive engagement. A weekly Q&A discussion board was not focused on the entire course, but rather, was relevant to the content the students were processing during that week. Within a face-to-face classroom, there are many times and spaces in which students can ask questions. For example, students are able to ask one another questions, they can stay after class and ask the instructor questions, and they can raise their hands and ask questions. In the online classroom, these opportunities are limited. Discussion boards, usually the sole space for social interaction and cognitive discourse in an online class, are structured and focused. Short of a direct email to the instructor, there is no space or time for students to ask the myriad questions they might have. Intentionally providing opportunities for students to ask questions each week can impact cognitive presence. Encouraging students to pose questions affects cognitive processes, helping generate higher order thinking and deeper learning (Rothstein & Santana, 2011).

**Answer Those Questions Within a Timely Manner**

In conjunction with instructors providing opportunities for students to ask questions, evidence shows those questions need to be addressed and answered in a timely manner. The importance of timeliness was highlighted by the student comment, "You come to class to ask

questions and learn what you can't learn from reading and watching, to learn from your professor and your peers." According to student feedback, timely responses to questions often did not occur in the online classroom. Students and faculty alike need timeliness to have an authentic discussion. For example, in one computer science course, students knew that within 24 hours of the lecture being published, the instructor would respond to any posted questions. Students were motivated to watch the lecture and ask questions within that time frame. Through the semi-structured student interviews and course evaluations, it became clear that something had to be done to combat the lack of authenticity often felt in discussion boards. One effective approach is to instill a more dynamic feel to the discussions through opportunities to ask questions and, just as importantly, to provide answers to those questions in a timely manner.

**Power of Student Choice**

Students naturally make choices during in-person discussions without needing an instructor to structure those choices. Students choose to join the discussion by asking a question or contributing a new idea. They decide the depth of their questions or responses. Students can play devil's advocate or agree with the group's thinking. They can choose to bring in outside experience or content. Strong class discussions include autonomy; students have flexibility in choosing the terms in which they interact with the content, their instructor, and their peers (Geis, 1976). Online course discussions with prescribed content, prompts, and posts remove natural choices from students. In these findings, instructional practices emerged that foster student choice in discussion boards. As one student asserted, "Having choice in the content we were discussing made it more engaging." These instructional practices provide choice in reading and prompts, choice in how students interact in the discussion, and choice in how students earn their

grade. Such choices serve to increase student engagement with both the social and cognitive processes.

**Choice in Readings and Prompts**

To improve student satisfaction and engagement, professors can set up online discussion boards to allow student choice in what they read or do prior to posting. Instead of having one reading assignment or one deep and rich open-ended prompt, the instructor can offer multiple reading options or multiple prompts, all of which tie into the theme or focus of the discussion, and students can choose what they read and/or which prompt to respond to based on personal preference or interest. Students expressed that it was more engaging to have choices because they were learning new things; it was less repetitive.

**Choice in How Students Interact in the Discussion**

Another strategy is to give choices on how students participate in the discussion. For example, one instructor gave three options under video lectures: “ask a question,” “respond to someone else's question,” or “comment on something interesting.” One student in this class said, “discussions were mandatory, but you could comment on something interesting or post a question. Yes, less strenuous, but deeper learning.” Students can learn from discussion boards beyond writing and responding within the discussion board by simply reading others’ posts, a concept known as pedagogical lurking. Pedagogical lurking is the non-visible learning that takes place in a discussion board (Dennen, 2008). It occurs when students read and give thought to the content without commenting; pedagogical lurking also contributes to learning (Dennen, 2008). Students appreciated the ability to choose how they interacted with the content and with others. Providing choice enhances students’ autonomy. As noted in Deci and Ryan’s (2000) self-

determination theory, autonomy is an innate psychological need; given this, both interest and motivation are increased through autonomy, or choice.

In addition to providing choice in how students interact, instructors could consider giving options in how students earn their participation grade. In this system, the instructor sets a number of points for the week and students earn points based on their types of interactions in the discussion board. For example, one instructor awarded more points for original posts than replies but students could choose either type. In this case, the instructor had 10-50 points for the discussion board each week, and students could earn 7 points for original posts and 3 points for replies. Points could also be earned by asking questions.

## Conclusion

Discussion boards have been a longtime, integral element of asynchronous online courses. When done well, they embody the three components of the Community of Inquiry model with instructor, social, and cognitive interaction. Disruptive events, like COVID-19, help researchers and instructors examine long-held course elements, such as discussion boards, in a different way. This study evaluated the structure of discussion boards through the student lens during remote learning, concluding that there are reasons students dislike traditional discussion boards, and revealed strategies for more enhanced social and cognitive presence. Discussion strategies, like the ones identified in this paper, should address student dissatisfaction with online discussions feeling repetitive and inauthentic. Insightful themes emerged from this study. Further research focused on student perception of discussion boards in traditional asynchronous online courses could help expand the findings of this study, exploring the effectiveness of the suggested strategies on cognitive interaction, student satisfaction, and student engagement.

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