BUILDING CONNECTIONS AND ENHANCING LEARNING: STUDENT PERSPECTIVES OF TRADITIONAL DISCUSSION BOARDS IN ONLINE COURSES

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ABSTRACT

This study explores the student perception of traditional discussion boards in online courses and their effectiveness in building connections and enhancing learning. The results indicate that, while online students recognize the importance of connecting with others, traditional discussion boards are ineffective in helping students connect. Students had a mixed perception of discussion boards and their value in enhancing learning; although they appreciate the opportunity to share their perspective and learn the perspectives of others, the study revealed that students struggle to find value in traditional discussion boards.

INTRODUCTION

The number of students choosing to take courses online is increasing. According to the U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (National Center for Educational Statistics, 2021), even without COVID-19, the number of students enrolled in distance education courses is growing each year, with significant growth seen in the last few years. Many students still favor a face-to-face learning environment over an online learning environment and find that they have a more favorable experience in the face-to-face classroom (Fish & Snodgrass, 2022; Weldy, 2018). Yet, despite the more favorable experience face-to-face, the number of students taking online courses continues to grow in part due to the convenience and lower cost of online courses and programs (Davidson-Shivers et al., 2018). Given the continued prominence of online education, it is important to explore student perceptions of commonly used instructional strategies. A central focus of instructional design needs to be student learning, satisfaction, and engagement (Martin & Bolliger, 2018).

Many aspects of online education have remained consistent over the years, particularly discussion boards. Discussion boards are utilized to promote social interaction, engagement, learning, and collaborative critical thinking (Aloni & Harrington, 2018; Chadha, 2017; Martin & Bolliger, 2018). However, students can find discussion boards to be repetitive and lack authenticity, and they fail to provide a genuine context for asking questions that promote learning (Schultz & Sandidge, 2022). The question that arises is, how do instructors design discussion boards that are effective in addressing the intended outcomes?

The online learning modality creates a different educational environment in comparison to the face-to-face classroom. The importance of learner satisfaction and engagement does not diminish in the online environment. The way students interact and learn is impacted by the instructional modality, and it is imperative that educators are deliberate and informed when choosing and using various instructional strategies and learning activities. Face-to-face classroom teaching methods do not transfer seamlessly into online courses, particularly in regard to the structure and execution

of class discussions that promote engagement and learning.

Traditional discussion boards are a common feature of asynchronous online learning (Christopher et al., 2004; Dailey-Hebert, 2018). This study investigated the student perspective regarding the effectiveness of traditional online discussion boards in building community and enhancing learning. Online students from comparable contexts, i.e., small, private, liberal arts universities, were invited to participate in an online survey that gathered both quantitative responses and qualitative short answers. To further explore the variables that impact student perception of traditional online discussion boards, students from varying programs and degree levels were included.

REVIEW OF RELATED LITERATURE

Traditional Online Discussion Boards

A traditional discussion board is an asynchronous online forum that consists of assigned course materials, an instructional prompt, and a timeframe for students to make threaded postings in response to the prompt. In many instances, with traditional discussion boards, students respond to the instructional prompt in an initial post and then reply to a number of peers. Well-designed asynchronous online forums should have a prompt, structure, and guidance from the instructor that stimulates higher order thinking in students (Christopher et al., 2004).

The Community of Inquiry (CoI) framework, developed by Garrison et al. (1999), is a useful lens through which the practices of online teaching and learning can be examined, including the purpose and design of asynchronous discussion boards. According to Garrison et al. (2010), the goal of the CoI framework is to "define, describe, and measure the elements of a collaborative and worthwhile educational experience" (p. 6). Further, the focus of the framework is on the dynamics of the educational experience that occurs in an online environment. The CoI framework recommends that effective learning environments consist of three types of presence: social, cognitive, and instructor. Social presence includes, but is not limited to, student-to-student encounters. In online courses, traditional discussion boards are often used to facilitate social presence and student-to-student interaction. Discussion boards also offer opportunities for cognitive presence and instructor presence through student-to-content and student-to-instructor interaction.

Many research studies have been published over the last several years that have focused on the student satisfaction with the engagement, structure, and impact of discussion boards, seeking to identify effective practices and approaches (Aloni & Harrington, 2018; Gasell et al., 2022; Jacobi, 2017; Martin & Borup, 2022). Further, claims have been made that discussion boards are effective in enhancing learning, such as Aloni and Harrington's (2018) assertion that, "Asynchronous online discussion boards are an effective tool for developing and enhancing critical thinking skills" (p. 271). There is a contention among researchers that best practices in online instruction include learner-to-learner interaction (Gasell et al., 2022), and theoretical frameworks, such as the Community of Inquiry, support this claim (Garrison et al., 2010). However, the perceived student point of view regarding the impact and effectiveness that discussion boards have on building community and enhancing learning has not been fully examined.

Student Perceptions of Discussion Boards

Students have mixed feelings about the value of and their experiences with asynchronous discussion boards. Positive perceptions of discussion boards include students valuing collaboration and structure (Bassett, 2011). Students link collaboration to the learning process: learning from others, self-insight, and transferring learning to different contexts. Discussion boards can be an effective tool for students to interact and collaborate with course content, peers, and the instructor (Dailey-Hebert, 2018). Additionally, students appreciate structured discussion boards that include clear expectations and timelines to complete discussion activities (Bassett, 2011).

Negative perceptions of discussion boards include students feeling impatient and bored and sensing a lack of instructor involvement. The asynchronous nature of discussion boards can cause students to become impatient while waiting for someone to respond to their post or waiting for a post that interests them enough to respond (Hill et al., 2009). Students can find text-based communication boring, repetitive, and often requiring forced interaction with others (Dailey-Hebert, 2018; Schultz & Sandidge, 2022). Previous

research shows that instructor involvement matters to students' satisfaction with discussion boards and encourages students to engage more with discussion activities (Dennen, 2005; Giacumo & Savenye, 2020; Giacumo et al., 2013; Reddy & Andrade, 2010). Conversely, the lack of instructor interaction or guidance negatively affects their perceptions of satisfaction with online discussion boards.

Benefits and Limitations of Discussion Boards

Online discussion boards are widely used to facilitate communication and collaboration among students in online courses. The benefits of utilizing discussion boards are opportunities for student-to-student interactions, active learning with course content, and student engagement. Online discussion boards allow students to interact with one another and collaborate on learning activities. This can enhance the sense of community and social presence in an online course (Garrison et al., 2001). With discussion boards, students can actively engage with course content independently and collaboratively, which can lead to deeper learning and retention of course information if instructors provide clear guidelines and time for learning to occur (Aderibigbe, 2021). Discussion boards can increase student engagement by providing a place for students to share their perspectives, learn from others, ask questions, and gain understanding (Bassett, 2011; Garrison, 2016).

Online discussion boards also have some limitations, including that they feel inauthentic in comparison to in-person discussions, and it can be difficult for students to get to higher order thinking. Another limitation is infrequent instructor presence and feedback. Online discussions often have low participation and lack meaningful interactions among students, making them feel inauthentic and a poor replacement for in-person class discussions (Schultz & Sandidge, 2022). Higher-order thinking requires students to make connections and change their environment through application or creation (Christopher et al., 2004). Students can reach higher levels of knowledge construction in discussion boards when they combine prior knowledge with course knowledge. Students without prior knowledge often cannot demonstrate higher order thinking in discussion board activities. The asynchronous nature of discussion boards makes it difficult for students to receive timely feedback and support from the instructor. This is in comparison to in-person discussions where students can ask questions and get feedback from peers and instructors almost immediately.

Purpose of the Study

The purpose of this study is to explore student perceptions of the effectiveness of traditional discussion boards in building connections and enhancing learning, and their overall satisfaction with discussion boards. The following research questions guided the study:

1. What are student perceptions of the effectiveness of traditional discussion boards in building connections in an online course?
2. What are student perceptions of the effectiveness of traditional discussion boards in enhancing learning in an online course?
3. What is the perceived student satisfaction with traditional discussion boards?

METHODOLOGY

Setting, Sample, and Participants

The sample consisted of online students at three private universities across the United States. Purposive sampling was used to select both the universities and the participants. These three universities were selected because of the shared size, nature, and liberal arts focus that they each have. We contacted instructional designers, online program directors, and online faculty from these three universities to invite enrolled online students to participate in the study. The survey was distributed via electronic mailing lists to undergraduate, graduate, and doctorate level online students. A total of 321 students participated in the online survey.

Participants

Participants from varying degree programs, levels, and years within online education were invited to take the survey to explore possible differences in perceptions of discussion board use. The participants had a range of years of experience in an online program, including less than one year (34.84%), two years (35.54%), three years (11.15%), and four years or more (18.47%). All the participants self-reported that they have completed at least one fully online course or are currently enrolled in an online program. Half of the participants (50.52%) were enrolled in a master's degree program. The remaining students were enrolled

in bachelor's (21.95%) and doctoral (27.53%) programs. The participants were enrolled in programs across various disciplines with just over half enrolled in an education program (52.26%). Other areas of study included business (19.16%), health sciences (8.01%), social sciences (3.48%), arts (3.14%), applied sciences (1.05%), humanities (0.7%), natural sciences (0.35%), and other (11.85%).

Data Collection

Data were collected during the summer and fall semesters of 2022 via the electronic survey instrument Qualtrics. We asked online program directors to send an email invitation to students enrolled in online programs to participate in the study. Prior to data collection, we obtained approval from the relevant institutional review board. The email invitation included a summary of the research study, contact information of the investigators, and a link to the electronic survey. Participation was voluntary and anonymous.

Instrument

The instrument, Student Perspective of Traditional Discussion Boards in an Online Course, was developed by us after an extensive review of the literature on student engagement, student learning, and asynchronous discussion boards. Survey items were developed to measure student perception of the use of traditional discussion boards (initial post, two replies). Areas of perception included building connections, facilitating learning, and the impact on both of these areas of instructor involvement. These three areas align with the extensive literature on the Community of Inquiry (CoI) and its three areas of presence: social, cognitive, and instructor. The instrument contained a total of 19 questions: 10 Likert scale items, six open-ended questions, and three demographic items.

Six experts reviewed the instrument for content validation prior to data collection. All the experts had extensive knowledge of online pedagogy and educational research. The experts reviewed a copy of the instrument and filled out an electronic survey rating its relevancy, and they were able to comment on each instrument item. The expert review resulted in some modifications to the original instrument. The final version included clarifying language around describing discussion boards and the instructor's role. We also adjusted the demographic language on degree levels and areas of study.

The revised instrument was piloted with 15 students from the target population. Cronbach's alpha coefficients were used to determine internal consistency reliability for the ten Likert scale, student perception items on the instrument. A Cronbach's alpha for internal consistency showed strong reliability ($\alpha = .885$). We determined that no more revisions to the instrument were necessary.

Data Analysis

The Likert survey data included 317 responses. We deleted any unanswered open-ended questions and were left with a range of 269–282 open-ended responses to analyze. Frequencies and descriptive statistics were generated, and we ran independent *t*-tests and a series of analysis of variance on the Likert questions to determine differences in responses based on length of time in program, degree level, and area of study. We used Lichtman's (2012) Three Cs of Data Analysis process to identify codes, categories, and concepts in the six open-ended questions. Frequent terms were coded to detect categories, and the categories were then compared to finalize concepts. Using a convergent parallel, mixed-methods design, we analyzed the quantitative and qualitative data independently and then compared them to come to an overall interpretation of the data.

Limitations

The study had a few limitations that bear mentioning. First, the students voluntarily chose to participate in the study; given this, there could be selection bias and the sample size may not accurately represent the broader online student population. Second, this study only examined the perceptions of students regarding the effectiveness of discussion boards in building connections and enhancing learning; instructor perceptions were not addressed. Finally, we did not investigate the quality of the discussion boards the students had experienced.

RESULTS

Quantitative Questions

T-test results

The instrument had 10 Likert scale items that were used for quantitative analysis. Independent *t*-tests were used to determine the mean response.

Table 1.
Mean Responses and Standard Deviations for Likert Items on the Instrument

Item	M	SD
1. In a fully online course, it is important to me to connect with other students.	3.37	1.25
2. Traditional discussion boards (initial post, two replies) help me connect with other students.	2.84	1.21
3. Traditional discussion boards (initial post, two replies) provide me an opportunity to discuss the content of the course.	3.53	1.08
4. Traditional discussion boards (initial post, two replies) contribute to my ability to learn the content of the course.	3	1.22
5. I enjoy participating in traditional discussion boards (initial post, two replies).	2.5	1.24
6. Traditional discussion boards (initial post, two replies) are boring to me.	2.39	1.18
7. Traditional discussion boards (initial post, two replies) are interesting to me.	2.58	1.18
8. Traditional discussion boards (initial post, two replies) are an effective learning tool.	2.9	1.17
9. Instructor replies in a traditional discussion board (initial post, two replies) increase my participation in the discussion board.	3.48	1.12
10. Instructor replies in a traditional discussion board (initial post, two replies) enhance my learning.	2.42	1.06

Note. N=287. Scale ranged from 1 (strongly disagree) to 5 (strongly agree) with an exception for item 6, which was reversed from 1 (strongly agree) to 5 (strongly disagree).

Responses could range from 1 (*strongly disagree*) to 5 (*strongly agree*), with item 6 having reversed coding. Table 1 shows the mean and standard deviation for each of the items in the Likert style portion of the instrument.

As shown in Table 1, Item 3 had the highest mean score ($M = 3.53$; $SD = 1.08$), with, as shown in Table 2, 68% of participants that agreed or strongly agreed that traditional discussion boards provided them an opportunity to discuss the content of the course. Item 6 has the lowest mean score ($M = 2.39$; $SD = 1.18$), with 60% of students agreeing or strongly agreeing that traditional discussion boards are boring. The scoring on this question, "Traditional discussion boards (initial post, two replies) are boring to me" was reversed.

Table 2.
Results of the Likert Style Items Distilled into Categories

Item	Strongly Disagree/ Disagree	n	Neither Agree nor Disagree	n	Agree/ Strongly Agree	n
1. In a fully online course, it is important to me to connect with other students.	28%	87	18%	58	54%	172
2. Traditional discussion boards (initial post, two replies) help me connect with other students.	44%	140	20%	62	36%	115
3. Traditional discussion boards (initial post, two replies) provide me an opportunity to discuss the content of the course.	19%	61	13%	40	68%	216
4. Traditional discussion boards (initial post, two replies) contribute to my ability to learn the content of the course.	39%	124	18%	58	43%	135
5. I enjoy participating in traditional discussion boards (initial post, two replies).	54%	170	22%	70	24%	77
6. Traditional discussion boards (initial post, two replies) are boring to me.	21%	68	19%	60	60%	189
7. Traditional discussion boards (initial post, two replies) are interesting to me.	52%	164	20%	64	28%	89
8. Traditional discussion boards (initial post, two replies) are an effective learning tool.	39%	122	26%	83	35%	110
9. Instructor replies in a traditional discussion board (initial post, two replies) increase my participation in the discussion board.	20%	64	22%	71	57%	182
10. Instructor replies in a traditional discussion board (initial post, two replies) enhance my learning.	18%	57	27%	7	55%	173

Note. N=317

The table shows that 54% (n = 172) of students found it important to connect with other students in a fully online course, yet only 36% (n = 115) agreed or strongly agreed that traditional discussion boards help them connect with other students. About a third of students (35%, n = 110) agreed or strongly agreed that traditional discussion boards are an effective learning tool. The majority of students agreed or strongly agreed that instructor replies increase their participation in the discussion board (57%, n = 182) and that instructor replies enhance their learning (55%, n = 173). In general, students do not enjoy discussion boards; 54% (n = 170) of students disagreed or strongly disagreed that they enjoy participating in traditional discussion boards and 52% (n = 164) disagreed or strongly disagreed that discussion boards are interesting. 60% (n = 189) agreed or strongly agreed that discussion boards are boring.

ANOVA results

We conducted a series of one-way analysis of variance (ANOVA) to identify differences in participant responses based on student degree level. The ANOVA was significant for six items on the instrument (See Table 3). There were two items where doctorate degree students agreed more strongly than master's degree students. Doctorate degree students found connecting with other students more important than master's degree students $F(2, 284) = 3.90$, $p = < .05$, and they felt more strongly that discussion boards provide them with opportunities to discuss course content in comparison to master's degree students $F(2, 284) = 3.397$, $p = < .05$.

There were four items where bachelor's degree students agreed more strongly than master's degree students. Bachelor's degree students more than master's degree students felt like discussion boards helped them to connect with other students $F(2, 284) = 4.12$, $p = < .05$. When asked if discussion boards contribute to students' ability to learn the content of the course, bachelor's degree students agreed more strongly than master's degree students $F(2, 284) = 4.40$, $p = < .05$, and they enjoyed discussion boards more than master's degree students $F(2, 284) = 5.36$, $p = < .01$. Bachelor's degree students also found discussion boards a more effective learning tool than their master's degree counterparts $F(2, 284) = 3.55$, $p = < .05$.

Qualitative Responses

The instrument had six open-ended, free response questions. With the open-ended questions on the instrument, we did an independent initial and secondary coding of each of the six questions. Then, we analyzed the codes and combined them into clear categories. The categories were then collapsed into two final concepts.

For the open-ended question, "What do you find valuable about discussion boards?" 13 codes

Table 3.
ANOVA Results by Degree Level

Item	Bachelor		Master		Doctorate	
	M	*SD*	*M*	*SD*	*M*	*SD*
1. In a fully online course, it is important to me to connect with other students.	3.54	1.28	3.19	1.25	3.62	1.11*
2. Traditional discussion boards (initial post, two replies) help me connect with other students.	3.16	1.30	2.67	1.17	2.97	1.19
3. Traditional discussion boards (initial post, two replies) provide me an opportunity to discuss the content of the course.	3.62	1.22	3.37	1.05	3.73	0.96*
4. Traditional discussion boards (initial post, two replies) contribute to my ability to earn the content of the course.	3.41	1.32	2.88	1.19	3.04	1.18*
5. I enjoy participating in traditional discussion boards (initial post, two replies).	2.90	1.41	2.31	1.16	2.56	1.14**
6. Traditional discussion boards (initial post, two replies) are boring to me.	2.67	1.37	2.34	1.12	2.33	1.15
7. Traditional discussion boards (initial post, two replies) are interesting to me.	2.90	1.36	2.48	1.15	2.51	1.10
8. Traditional discussion boards (initial post, two replies) are an effective learning tool.	3.25	1.32	2.79	1.14	2.87	1.11*
9. Instructor replies in a traditional discussion board (initial post, two replies) increase my participation in the discussion board.	3.52	1.23	3.62	1.12	3.48	1.13
10. Instructor replies in a traditional discussion board (initial post, two replies) enhance my learning.	3.32	1.27	3.45	1.00	3.39	1.06

*p<.05. **p<.01

emerged. These 13 codes were collapsed into 10 categories, of which two were the most prominent. Table 4 identifies the key categories for each question. With the question, "What do you like least about discussion boards?" 16 codes were identified in the responses. After combining similar codes, 14 categories were determined, with three key categories. Eleven codes were recognized within the responses to the question, "In a fully online course, what elements of discussion boards have helped you connect with other students in meaningful ways?" The 11 codes were collapsed into six categories, with two prominent categories. For the question, "In a fully online course, what elements of discussion boards have helped you learn best?" 10 codes were identified and then collapsed into eight categories, with four key categories. Eight codes emerged from the responses to the question, "In a fully online course, how do you connect best with other students?" These codes were not collapsed any further, and five key categories were identified. With the question, "In a fully online course, what instructor approaches prompt you to engage discussion boards more?" there were 11 codes. The 11 codes were collapsed into eight categories, with three prominent categories.

After determining the key categories from the qualitative data, we examined these categories and identified the overarching concepts that emerged from the collective data. Two clear concepts emerged from the coded and categorized participant responses. The first concept was that students struggle to find value in discussion boards. Even in positively framed questions about the value and benefits of discussion boards, many students responded negatively with laconic answers such as "nothing" or "none." With each qualitative question in the survey, there were participants that responded in ways that demonstrated they saw little to no value or benefit to traditional discussion boards. Examples of participant responses which espoused this opinion include, "I don't find anything valuable," and "Nothing; I feel they're tedious and boring."

The second concept was that students appreciate a variety of perspectives. Differing perspectives

Table 4.
Key Categories from Qualitative Data

Question	*n*	Key categories	%
What do you find valuable about discussion boards?	280	Other perspectives/learn from others	38%
		Nothing	15%
What do you like least about discussion boards?	282	Requirements	27%
		Busy work/check box	13%
		It's not a discussion, others aren't engaged	11%
In a fully online course, what elements of discussion boards have helped you connect with other students in meaningful ways?	275	Nothing/they don't	26%
		Sharing personal experiences, learning, perspectives, opinions	26%
In a fully online course, what elements of discussion boards have helped you learn best?	269	The variety of perspectives (from others)	22%
		None/they don't	19%
		Preparing for the initial post (reading, researching, articulating)	17%
		Instructor involvement	14%
In a fully online course, how do you connect best with other students?	276	Connect outside of class (text, email, social media)	24%
		Live meetings/sessions	23%
		Discussion boards	22%
		Group projects	19%
		I don't	14%
In a fully online course, what instructor approaches prompt you to engage discussion boards more?	269	Instructor participation (comments/questions)	26%
		Credit/grade/points/deadlines	22%
		Nothing/not sure	11%

matter; they want to share their own point of view and learn from others. Alternate perspectives impacted student perceptions of discussion boards, learning in discussion boards, and the connection that occurred between students in discussion boards. Participants shared this thinking through comments such as, "Connecting with the other students and reading their ideas and beliefs helps me to see other views," and "I'm able to see what other people's thought process and how they viewed an issue/problem. Sometimes they bring a fresh new point to the table which is nice."

DISCUSSION

Both the quantitative and qualitative results of this research study show a mixed perception of traditional discussion boards among students in fully online courses. Students identified elements that they appreciate with discussion boards. However, most students do not enjoy participating in them and find them boring. The results reveal that students struggle to find value in traditional online discussion boards.

Building Connections

The first research question that this study addressed was student perceptions of the effectiveness of traditional discussion boards in building connections in an online course. Within the quantitative results there are juxtaposed positions. The study shows that, while students find it important to connect with other students in a fully online course, traditional discussion boards do not effectively provide this element as intended. Only 36% of students agreed or strongly agreed that traditional discussion boards help them connect with other students, although 54% of students find it important to connect with other students in a fully online course. The importance of creating connections between students is emphasized in the social element of the Community of Inquiry (Garrison et al., 2001). Previous literature supports this finding that students feel like interaction is forced or find it difficult to connect asynchronously (Dailey-Hebert, 2018; Hill et al., 2009). Students noted that the elements of discussion boards that helped them connect with other students in meaningful ways are when they have the opportunity to share personal experiences and opinions that represent a different perspective. However, an almost equal number of students asserted that discussion boards simply do not help them connect with other students. Student responses indicate that discussion boards are not providing this element as intended.

When responding in the short response section to how they connect best with students in online classes, students focus on instructional strategies other than traditional discussion boards. Other instructional approaches, such as virtual meetings or sessions and group projects, are noted as effective. Students also commented that they create connections outside the online classroom through text, email, and social media.

Enhancing Learning

The second research question explored student perceptions regarding the effectiveness of traditional discussion boards in enhancing learning in an online course. Although over half of students agreed that traditional discussion boards provided them with an opportunity to discuss the content of the course, only 43% agreed that they contributed to learning the content of the course. Further, only 35% of students agreed that traditional discussion boards are an effective learning tool.

Students do find that researching and reading to prepare for their own post is helpful in learning the material. Additionally, the design of the discussion board, if it promotes diverse thought and opinions, also has a positive impact on student learning. The study finds that students appreciate hearing and learning about a variety of perspectives from their fellow students. They want to share their own point of view and learn from others, and the alternate points of view from other students impact student learning in discussion boards and the connection that occurred between students in discussion boards. The student responses highlight the importance of creating a diverse learning environment in which students can learn from and engage with different perspectives and points of view.

The study shows the students' perceived importance of the instructor and cognitive elements of the Community of Inquiry (Garrison et al., 2001) in that the presence and participation of instructors in discussion boards can positively impact student engagement and learning. The majority of students agreed or strongly agreed that instructor replies increase their participation in the discussion board (57%) and that instructor replies enhance their learning (55%). Only 18% of students disagreed that instructor replies in the discussion board enhance

their learning. In the short response section, over a quarter (26%) of the students responded that the instructor approach that prompted them to engage in discussion boards more was instructor participation in the discussion board. Students reference both instructor comments and questions as helpful in prompting more learning-focused engagement.

Perceived Student Satisfaction

The third research question looked more broadly at the perceived student satisfaction with traditional discussion boards. The study finds that student satisfaction with traditional discussion boards is low, with most students disagreeing that they enjoy participating in them or that they find them interesting. According to the study, students do not enjoy discussion boards in general, with 54% of students disagreed or strongly disagreed that they enjoy participating in traditional discussion boards, and 52% disagreed or strongly disagreed that discussion boards are interesting. Further, 60% of students agreed or strongly agreed that discussion boards are boring.

A negative perception toward traditional discussion boards is further highlighted in the short responses of the qualitative section. A significant concept from the student short answer responses was that they find little to no value in discussion boards. Even when asked positively framed questions about the value and benefits of discussion boards, many students responded negatively, stating that they see little to no value or benefit in these types of online discussions. With every open-ended question, responses that viewed traditional discussion boards negatively were given by at least 10% of respondents.

Student Degree Level

Student degree level is a factor in students' perceptions of traditional discussion boards. The results of the ANOVA revealed significant differences in participant responses based on student degree level (Table 3). Students enrolled in master's degree programs have a less favorable perception of discussion boards. Doctorate degree students agreed more strongly than master's degree students that connecting with other students is important and that discussion boards provide them with opportunities to discuss course content. Bachelor's degree students agreed more strongly than master's degree students that discussion boards helped them to connect with other students and contributed to their ability to learn the content of the course, and that they enjoyed discussion boards more and found them a more effective learning tool. These findings suggest that the level of education may play a role in how students perceive the value and effectiveness of traditional discussion boards.

The results of the study indicate that traditional discussion boards may not be the most enjoyable or interesting aspect of an online course for students. Students have strong negative perceptions towards traditional online discussion boards. Less than half of respondents agreed that discussion boards helped them connect with other students or contributed to their ability to learn the content. Further, less than a third of respondents agreed that they enjoyed participating in them or found them interesting. However, the design of the discussion board, if it promotes diverse thought and opinion, as well as the involvement of the instructor are helpful factors for student learning and connection. Another consideration is the learning needs of students at different degree levels in online classes may vary as master's degree students have the least favorable perceptions of traditional discussion boards.

CONCLUSION

In conclusion, the results of this study reveal a mixed perception of traditional discussion boards among students in fully online courses. While many students find it important to connect with their peers in an online setting, traditional discussion boards are not always seen as an effective or enjoyable way to do so; in fact, most students do not enjoy participating in traditional discussion boards and find them boring. The results suggest that educators and instructional designers need to rethink the way in which they design and facilitate discussion boards to make them more engaging and valuable for students, even considering alternative methods from traditional discussion boards of promoting student interaction and engagement in fully online courses.

Further research is recommended to explore alternative forms of online discussion and interaction that may be more effective in fostering social, cognitive, and instructor presence in online education. This could include the use of virtual reality environments, synchronous online discussion sessions, or group projects. Additionally,

research could explore the impact of different instructional strategies and designs on student engagement and learning in traditional discussion boards, such as incorporating more open-ended and thought-provoking prompts, or providing more opportunities for student-led discussions. Another area of research could explore the specific needs and preferences of different degree levels in online education, such as comparing the perceptions of traditional discussion boards among undergraduate, graduate, and doctoral students. Further research is needed also to explore the reasons for these differences and how instructional designers and educators can better support the learning needs of students at different degree levels in online discussion boards. The focus of this study was on the perceptions of students. Additional research could be conducted to ascertain the perceptions of instructors. An understanding is needed of how instructors see discussion boards contributing to student learning and connection.

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