

HOW ARE STUDENTS ENGAGING IN DIFFERENT TYPES OF ONLINE DISCUSSION BOARDS?

C. Vallis¹, C. Prieto Alvarez¹, N. Arthars²

¹University of Sydney (AUSTRALIA)

²Queensland University of Technology (AUSTRALIA)

Abstract

Communication in online learning environments became essential in the global pandemic and lockdown. Apart from online lectures and classes, many educators began or increased their use of asynchronous text discussion boards. Often educators are faced with a choice of many different discussion boards and would benefit from insights into how students may engage with different types of tools.

This study explores the use of three different asynchronous text discussion tools used in Canvas Learning Management System (LMS), by drawing upon the concept of 'set design' from the Activity Centred Analysis and Design (ACAD) framework. Discussion boards are conceptualised as shaping the learning activity which occurs in it, as the physical (digital and material) elements and the social context of discussion.

To understand how the educational design of discussions intersects with technological affordances and barriers, this study adopted a qualitative approach to data collection. Over a period of one year, university students enrolled in an undergraduate first year business course and four postgraduate majors (including accounting, finance, and leadership), were invited to share their perceptions of online discussion boards. Participation in the discussion boards was voluntary and ungraded, and they were designed as a space to ask questions and elaborate on topics and assessments, to critique and construct knowledge, and to share ideas. Data from thirty-seven student focus groups was thematically analysed, refined, and coded with the online engagement framework by Redmond, Heffernan, Abawi, Brown, and Henderson (2018). Student engagement was then compared across three different online asynchronous discussion tools in seventeen different courses with varying course designs.

The findings reveal that different discussion tools may satisfy different needs, and that educators' design intentions and expectations around discussions may not match students. Furthermore, the value of discussion boards may be better assessed as part of a learning ecosystem, rather than evaluated as discrete tools. Future research directions are suggested to support educators in understanding how discussion is shaped not only by technology, but also with what and whom students attempt to engage with in these asynchronous online discussion boards.

Keywords: discussion forums, set design, ACAD framework, online learning, discussion forum design, discussion tools; online engagement framework.

1 INTRODUCTION

Online learning environments have been critical in the global pandemic and lockdown, with much communication and interaction shifting to synchronous webinars, particularly Zoom, as the dominant platform [1]. However, apart from online webinars and classes, many educators began or increased their use of text-based asynchronous discussion boards, which are common tools in online learning [2]. Educators, faced with a plethora of different discussion tools would benefit from better understanding how students may engage with these different types, in order to make evidence-based decisions.

The asynchronous text discussion board as a means of engaging debate and discussion has a long history. Distance educators have been using such discussion tools long before the pandemic and the 'pivot' to remote emergency teaching [3]. The Community of Inquiry (CoI) model was developed and refined over many years of practice and research into online asynchronous discussions [4]. Meanwhile, educational technologies and collaborative tools continue to proliferate [5], and the discussion board has moved from the main vehicle for interaction to one tool among many. Social media, its tropes, and behaviors, have also influenced the forms of online discussion boards and how they are used [2].

Online discussions are considered as learning activities that are shaped by their setting, by their physical and social contexts, drawing on the concept of 'set design' from the Activity Centred Analysis and Design

(ACAD) framework [6]. While learning itself cannot be designed, some of the physical (digital and material) and social components of the situation in which learning activity unfolds may be more effectively designed, and shape learning indirectly [6]. Hence, we investigated discussion in large and diverse cohorts of Australian business students across the set design of three different asynchronous online discussion tools.

Student responses to these discussion tools and activities were analysed with the online engagement framework [7]. The online engagement framework describes five interrelated dimensions of online teaching and learning as influenced by place, and which have social, cognitive, behavioral, collaborative, and emotional indicators [7]. Its theoretical underpinnings align with our pedagogical approach, which centers students as bringing diverse experiences to their education, and actively learning as opposed to passively being taught. Students who actively engage in activities such as online discussions are more likely to engage with and complete assessments. Teachers are also actively communicating with students and facilitating engagement [8].

Building on the online engagement framework, this study aims to assist educators to answer the question: How are students engaging in different types of asynchronous online discussion boards and how does their technical design influence engagement? In doing so, we appraised students' engagement holistically, without valorising one dimension over another, to widen educational research and debate about what might constitute a productive discussion.

2 METHODOLOGY

A qualitative approach was used to understand how students engaged in asynchronous online discussion boards and the influence their design had on engagement. Focus groups were used to capture a large number of student perspectives across courses. A total of 37 focus group interviews were conducted online across 17 different courses at The University of Sydney Business School, as part of the Connected Learning at Scale project [9] which involved evaluating the (re)design of courses. Ethics approval was obtained from the Human Ethics Office at the University of Sydney (project number: 2019/892).

Towards the end of each semester, all students enrolled in the courses were invited to participate in a one-hour online focus group and offered a voucher to thank them for their participation. Each focus group was approximately one hour in length and attended by a maximum of eight students. Multiple focus groups were held for courses with large cohorts. During each focus group, students were asked a range of questions about their experience in the (re)designed course including questions about the discussion boards used in the course. Discussion boards were presented to student participants using screensharing to stimulate focus group discussion. All focus groups were recorded and later transcribed verbatim.

Transcripts were initially reviewed to identify excerpts related to the discussion boards. These excerpts were then analysed thematically [10], using deductive coding against the Online Engagement Framework within the initial codes of social, cognitive, behavioral, collaborative, and emotional engagement. Using the illustrative indicators of each area of engagement as a starting point, excerpts were coded against these indicators and additional indicators were identified; including cognitive engagement indicators (e.g., seeking elaboration and externalising ideas) and emotional engagement indicators (e.g., expressing frustration).

3 RESULTS

Students adapted to the many constraints and affordances of the learning environments in which they interacted [11]. The duration of the course was for an intensive thirteen-week semester within the context of lockdown and pandemic stress. Students interacted in the learning environment as part of their institutional study, rather than as a passion or practice sustained over time in a community of practice [12]. In this context, students discussed feeling more accountable in synchronous, face-to-face classes where teachers might specifically call upon them to engage in discussion or ask them to talk to the person next to them. Students felt less inclined to engage in asynchronous online discussions and where possible, preferred to engage in deeper, more critical discussions in synchronous settings.

Students' engagement and activity in discussion boards was influenced by its epistemic, physical and social design; by the different learning design, functionality, and social context of the courses as discussed below [6].

3.1 Discussion Board (Set) Design

The technical design of discussion boards may influence student engagement. Students were exposed to multiple tools in different courses (EDStem, Atomic, and Canvas discussion boards) each one with similar features but different design affordances. Participation in these discussion boards was formative and optional, none were graded or assessed. All discussion boards had 'allow liking' enabled to encourage interaction, were sorted by likes, and none were graded as assessment items. Students were explicitly asked to like and comment on others' posts and the discussion boards were open, so that students could see discussions without necessarily posting (See Figure 1).

In some instances, the large volume of posts was overwhelming, so it is possible that students did not read the full discussion because there were too many comments. This is a common occurrence in comment-based platforms since the content is usually distributed across multiple pages to reduce cluttering. Threaded discussions are organised hierarchically and nested, in which students tend to reply to a single or limited number of posts. It was technically difficult for students to read and engage meaningfully with others' ideas in long, complex discussions. The user interface focusses attention on the conversation starter, and latest or most popular posts, and other comments may be buried. This limits social, constructivist learning [13]. Students commented favourably on discussions where specific information was easy to find.

The affective forms and structure of social media are important in contemporary discussions, with reactions and emojis, and the ordering of posts and replies by likes, for example. Yet configuring discussion tools so that posts are sorted by new comments or by likes, may favour certain types of contributions. The person who posts early may garner more likes and is more visible, and if more liked this post will have more reads, regardless of its quality. Discussion board design and configuration may skew posts towards gaining popularity; rather than a critical, well-defended argument.

Educators may need to consider setting the scene with multiple discussion boards that are configured to serve different purposes and types of engagement.

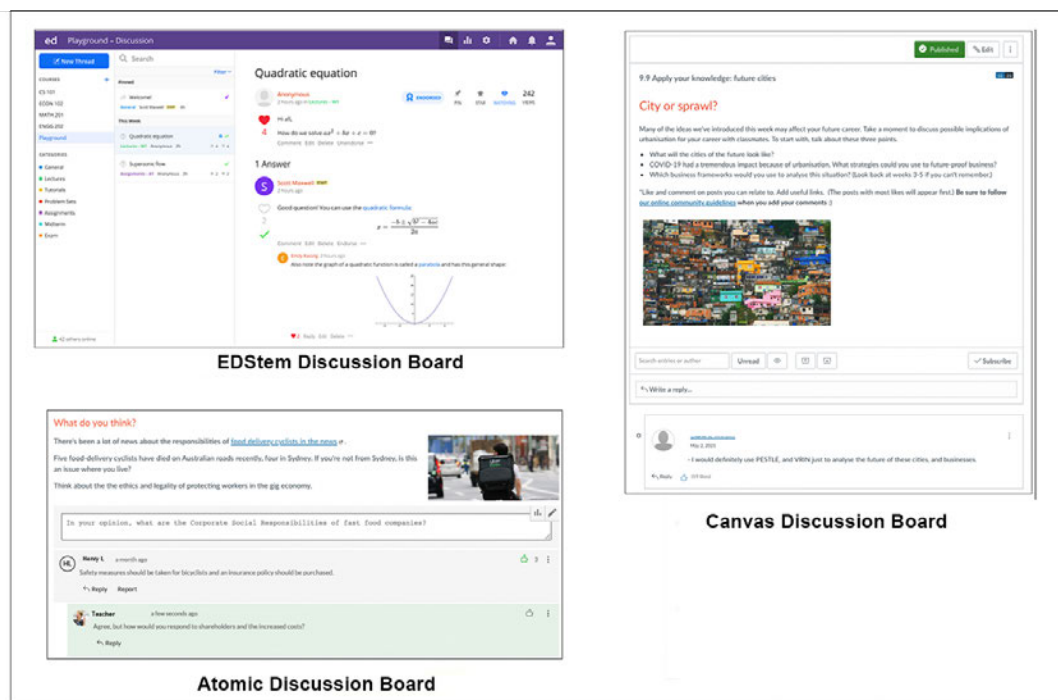


Figure 1. Discussion Boards UX design

3.2 Discussion Board Engagement

Below we give an overview of insights from the five dimensions of engagement, cognitive, social, behavioral, emotional, and collaborative, which for the purposes of this study are delineated, but considered holistically with no dimension inherently more valuable than another.

3.2.1 Collaborative Engagement

The dimension of collaborative engagement and its indicators were less evident in analysis of the focus group data. While learning with and from peers, and relating to teachers, appears to be an inherent focus of the discussion board, collaboration was not inherent in the design. Such course specific discussion boards were not designed for connecting to wider institutional opportunities or developing professional networks beyond the university learning management system. Consequently, students referred to discussion boards as individual learning tools, not as collaborative spaces. Many of the discussion designs were either directed at asking questions, or as ways to engage with information by sharing opinions, encouraging individual responses rather than sustained peer interaction.

Discussion boards were generally not designed in a way that facilitated collaborative engagement. However, the use of other (chat-based) technology facilitated collaborative engagement and discussion related to group assessments. In this regard, the *asynchronous* nature of discussion tools did not facilitate or stimulate students' collaborative engagement in the way that *synchronous* tools did.

3.2.2 Cognitive Engagement

None of the discussion boards in this study were designed as the prime tool for learning nor were they assessed. As such, there was less cognitive engagement than might be expected in discussions where asynchronous text exchanges are central to students' learning and grades. Even where discussion boards are central, constructing knowledge has traditionally been a challenge, with educators noting a lack of critical thinking in comments, some superficial and unfocused contributions [14].

In this research, students observed that comments rarely attracted replies or furthered arguments in discussions. Instead, students mostly summarised or connected their knowledge to the learning materials or expressed an opinion. Such discussions were sometimes perceived as a "waste of time", also because of the lag in replies and the lack of teacher comments.

"No one would actually reply to other's views...everyone would just like share their point of view, or just add a response to the question, to show they have done this in-class assessment."

In these courses, a high proportion of participants were international students who felt it was culturally undesirable to critique each other's ideas publicly. This sentiment runs counter to educational research where student's cognitive contribution is evaluated for indicators of critical thinking [15].

Indeed, few students actively contributed to discussions, preferring synchronous interaction, and/or to read other people's posts. These students nevertheless found reading other's posts somewhat useful, "to spark ideas", and to "learn from other people's perspectives", for example. Some students engaged with discussion posts at the beginning of the course and then less later in the course, perhaps just reading to "learn from other people's perspectives", particularly when assessments were due. Discussion boards were not seen as spaces to develop, integrate and distribute deep discipline expertise, but rather as tools for seeking elaboration and externalising ideas. This metacognitive activity allowed students to gauge their understanding of the course in a low-stakes, non-threatening way, which many referred to as being helpful throughout their course.

3.2.3 Social Engagement

Students felt they must write in a formal register, perhaps because the university learning environment failed to encourage informal discussion, as it seemed quite public and formal to students. Their engagement might have been vastly different in more informal online spaces. Indeed, many students preferred social media for informal communication and groupwork, while other perceived classes (synchronous sessions on Zoom) as the prime vehicle for conversation, collaboration and social interaction.

Building a sense of belonging and community, establishing trust, these social engagement indicators were scant on the asynchronous text discussion boards, in part because communication was easier in classes, "rather than writing slabs of text". Generally, synchronous help was preferred. Students described missing impromptu elements in discussion boards; the jokes and stumbles of face-to-face interaction, for example. The online learning environment was perceived as more business-like, and this hindered social engagement.

"I feel like when you're typing something, it's kind of hard to get your point across as much. Obviously because when you're just speaking to someone face-to-face, a lot of what you're saying comes with your facial expressions, your tone, and all that. And so sometimes when typing, those interactions are just a little bit more awkward."

Attitudes to the role of social engagement in discussions varied widely. One student foregrounded the importance of social engagement at university, initiating a Discord channel to coordinate and communicate in-person and online social events, in addition to the university discussion boards. At the other end of the social spectrum, another student believed that teachers shouldn't try to facilitate social connection, that their role was rather to be supportive.

However, many students commented on their interest in discussion boards as a way of checking whether their answers were correct, and to check their own progress against other peers, by way of social comparison. Students were concerned when the volume of responses made it difficult to determine which were the best answers and information. Comparing information helped students check their social standing, and how they might learn and adapt in demanding situations [16].

3.2.4 Behavioral Engagement

Students' behavioral engagement primarily focussed around developing agency and supporting peers, and to a lesser extent, developing academic skills. Students valued discussion tools as forums for questions where they could receive answers from teachers and other students. One student appreciated that questions were "patiently and clearly" answered and was surprised to see that other students asked similar questions. It was helpful that this information was visible to other students to read, even if they 'lurked' on the discussion boards and didn't actively participate and contribute [17]. One student appreciated the collegiality of the discussion boards:

"even other students will reply to your questions as well, so it's not just teachers who are just giving you this set reply every time, it's like your friends helping each other out, and you become more invested in the course and you get more of a sense of belonging."

Students showed agency, an indicator of behavioral engagement, in actively organising their own communication tools and modes for more casual interaction to complete assessments. Synchronous social media tools were preferred for their ease of use in this regard.

Other types of behavioral engagement were also noted. For example, one student used others' responses in the discussion boards to make notes, developing academic skills and actively self-regulating their learning with this note-taking strategy. Students often supported or endorsed each other's posts through a 'like' rather than a reply.

Discussions were engaging where there were clear expectations of discussion behaviour, particularly where they were student-led.

3.2.5 Emotional Engagement

Emotional engagement, although clearly present in the courses, was not explicitly referred to by students in relation to the online asynchronous discussion boards. References by students to emotional engagement were limited and where it was discussed in focus groups, emotional engagement related primarily to negative emotions. Students referred to creating their own external discussions on platforms such as WeChat and WhatsApp to express negative emotions, including frustrations about other students and assessments. Arguably, the ability to 'like' posts in Canvas discussions facilitates the expression of positive emotions and this feature was discussed favourably by students who used it to show support and agreement with other students' responses.

The limited discussion around emotional engagement in focus groups is concerning, particularly given recent findings around the strong link between emotional engagement and learner satisfaction, considered more influential than cognitive and behavioural engagement [18]. While noting the relative difficulty in identifying emotional engagement, positive signs of emotional engagement in online learning environments (in their study, MOOCs) are said to include both the absence of negative emotions and the presence of positive ones [18].

4 CONCLUSIONS

Our findings indicate that the set design of discussion boards is important for engagement. Different discussion tools may satisfy different needs, even if educators' design intentions and expectations around discussions often do not match students. Educators may increase student participation by considering different dimensions of online learning engagement, particularly outside of the traditional cognitive focus. The value of asynchronous text discussion boards may be better assessed as part of a learning ecosystem, rather than evaluated as discrete tools. In some cases, educators might consider

discussion boards as springboards, or as vehicles to move interaction to another place, rather than expect deep cognitive engagement in a formal, public space. With an ever-expanding repertoire of online communication tools, educators need to be aware of the opportunities for multiple discussions, multimodal interactions, and communication in their courses, as the design of online conversations (synchronous and asynchronous) across different tools influences the type of engagement.

The research method and analysis of a combination of three different asynchronous discussion tools, in large cohorts of both domestic and international students, contributes unique insights into how students perceive online engagement. Students, in seventeen different courses of varying designs in large-scale blended and online delivery modes, were asked directly about their engagement, rather than inferring their attitudes from discussion content analysis or measuring their engagement from measuring, collecting, and analysing their online behavior on discussion boards.

Examining students' qualitative responses prompted further research questions. While some students found value in externalising their ideas and elaborating and expressing opinions in discussion tools, others found such use superficial and meaningless. More research is needed on discussion boards that are intentionally designed to engage students in different ways (whether it be collaborative, cognitive, emotional, social, behavioral, or any combination of these).

Moreover, students clearly valued discussions with teachers more highly than with each other, indicating that educators need to design with and articulate expectations around behavioral and peer engagement. This study concludes that when designing for engagement, educators must also understand *for whom* students are posting. For example, is the discussion board a tool for self, a group, all other students, for the teacher team, or primarily for the course coordinator? Educational design and learning experiences may be improved by considering with whom and with what content students are interested in engaging in asynchronous online discussion boards.

The authors acknowledge that this research was conducted during huge technical, institutional, and global challenges, and this may have influenced students' responses. Many students disengaged from discussion boards and other forms of interaction altogether during this time, and their attitudes are not known. Future research directions could include widening the scope of the discussion tools research and inviting collaborators to study student engagement across multiple settings longitudinally.

Another limitation of this research is that it draws only upon students' self-reported data. Without evaluating actual usage patterns together with educators' perspectives and their decisions around the design of their courses, it is not possible to draw conclusions as to whether asynchronous discussions were intended to engage students socially, cognitively, behaviorally, collaboratively and/or emotionally. Exploring educators' intentions and reasons for using asynchronous discussions is an important area for future research.

ACKNOWLEDGEMENTS

The authors would like to thank the University of Sydney Business Co-Design team and students involved in the evaluation of the Connected Learning at Scale project for their contribution to this discussion analysis.

REFERENCES

- [1] M. A. Cowling, J. Crawford, C. Vallis, R. Middleton, and K. Sim, "The EdTech difference: Digitalisation, digital pedagogy, and technology enhanced learning," in *Journal of University Teaching & Learning Practice*, vol. 19, no. 2, pp. 1-13, 2022. doi:10.5376/1.19.2.1.
- [2] M. Bond, K. Buntins, S. Bedenlier, O. Zawacki-Richter, and M. Kerres, M., "Mapping research in student engagement and educational technology in higher education: a systematic evidence map," *International Journal of Educational Technology in Higher Education*, vol. 17, no. 1, 2020. doi:10.1186/s41239-019-0176-8.
- [3] M. G. Moore, (ed.), *Handbook of distance education*, Routledge, 2013.
- [4] Z. Akyol, and D. R. Garrison, (eds.), *Educational Communities of Inquiry: Theoretical Framework, Research and Practice*, IGI Global, 2013. doi:10.4018/978-1-4666-2110-7.

- [5] F. Martin, V. P. Dennen, and C. J. Bonk, "A synthesis of systematic review research on emerging learning environments and technologies," *Educational Technology Research and Development*, vol. 68, no. 4, pp. 1613–1633, 2020. doi: 10.1007/s11423-020-09812-2.
- [6] P. Goodyear, L. Carvalho, and P. Yeoman, "Activity-Centred Analysis and Design (ACAD): Core purposes, distinctive qualities and current developments," *Educational Technology Research and Development*, vol. 69, no. 2, pp. 445–464, 2021. doi: 10.1007/s11423-020-09926-7.
- [7] P. Redmond, A. Heffernan, L. Abawi, A. Brown, and R. Henderson, "An online engagement framework for higher education," in *Online Learning*, vol. 22, no. 1, pp. 183-204, 2018. doi:10.24059/olj.v22i1.1175.
- [8] A. Brown, J. Lawrence, M. Basson, and P. Redmond, "A conceptual framework to enhance student online learning and engagement in higher education," in *Higher Education Research & Development*, pp. 1–16, 2020. doi:10.1080/07294360.2020.1860912.
- [9] P. Bryant, N. Arthars, D. Eden, and E. Huber, "Leveraging the pandemic to build a community of networked, engaged and curious learners – our future leaders," in *ASCILITE 2021: Back to the Future – ASCILITE '21 Proceedings ASCILITE 2021 in Armidale*, Dec. 2021, pp. 241–245, doi: 10.14742/ascilite2021.0136.
- [10] V. Braun and V. Clarke, "Thematic analysis.," in *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological.*, H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, and K. J. Sher, Eds. Washington: American Psychological Association, pp. 57–71, 2012, doi: 10.1037/13620-004.
- [11] A. Collins and J. G. Greeno, "Situated View of Learning," in *International Encyclopedia of Education*, Elsevier, pp. 335–339, 2010, doi: 10.1016/B978-0-08-044894-7.00504-2
- [12] É. Wenger-Trayner, *Communities of practice: learning, meaning, and identity*, 18th printing. Cambridge: Cambridge University Press, 2008.
- [13] C. Demmans Epp, K. Phirangee, J. Hewitt, and C. A. Perfetti, "Learning management system and course influences on student actions and learning experiences," *Educational Technology Research and Development*, vol. 68, no. 6, pp. 3263–3297, 2020. doi:10.1007/s11423-020-09821-1.
- [14] F. Gao, T. Zhang, and T. Franklin, "Designing asynchronous online discussion environments: Recent progress and possible future directions: Designing asynchronous discussion environments," *British Journal of Educational Technology*, vol. 44, no. 3, pp. 469–483, 2013. doi:10.1111/j.1467-8535.2012.01330.x.
- [15] L. A. Giacumo and W. Savenye, "Asynchronous discussion forum design to support cognition: effects of rubrics and instructor prompts on learner's critical thinking, achievement, and satisfaction," *Education Tech Research Dev*, vol. 68, no. 1, pp. 37–66, 2020, doi: 10.1007/s11423-019-09664-5.
- [16] A. P. Buunk and F. X. Gibbons, "Social comparison: The end of a theory and the emergence of a field," *Organizational Behavior and Human Decision Processes*, vol. 102, no. 1, pp. 3–21, 2007, doi: 10.1016/j.obhdp.2006.09.007.
- [17] A. Bozkurt, A. Koutropoulos, L. Singh, and S. Honeychurch, "On lurking: Multiple perspectives on lurking within an educational community," *The Internet and Higher Education*, vol. 44, p. 100709, 2020, doi: 10.1016/j.iheduc.2019.100709.
- [18] R. Deng, "Emotionally Engaged Learners Are More Satisfied with Online Courses," *Sustainability*, vol. 13, no. 20, p. 11169, Oct. 2021, doi: 10.3390/su132011169.