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ORIGINAL RESEARCH

Promoting Student Engagement in Online Education: Online Learning Experiences of Dutch University Students

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Abstract
Student engagement is an important factor in higher education learning, but engaging students in online learning settings has been found to be challenging. Little research has been conducted yet into how online learning activities can engage students. In this study, students' experiences with online education were examined during the COVID-19 pandemic to find out what online learning activities promoted their engagement and what underlying engagement mechanisms informed those activities. Six online focus groups were held via Zoom with students ($N=25$) from different social sciences programs at the University of Amsterdam. Findings revealed synchronous and asynchronous online learning activities that stimulated three dimensions of engagement and their underlying mechanisms. *Behavioral* engagement was stimulated through activities that promote attention and focus, inspire effort, break barriers, and provide flexibility. *Affective* engagement was stimulated through activities that promote a group feeling, encourage interaction, and create a sense of empathy and trust. And *cognitive* engagement was stimulated through activities that generate discussion and personalization. This research provides teachers with insights into how to promote student engagement in online education.

Keywords Student engagement · Online education · Dutch higher education · Online focus groups

1 Introduction

In recent years, student engagement has received increasing attention in educational research and practice (Aparicio et al., 2021; Wimpenny & Savin-Baden, 2013). Across all levels and phases of education, student engagement is considered a crucial factor for student learning. Research has shown that students who are more engaged with their studies and during class progress more in their studies and performance (Christenson et al.,

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2012; Fredricks et al., 2004; Trowler, 2010). Student engagement in higher education has also been extensively studied, including how it relates to the use of educational technology (Bond et al., 2020; Martin et al., 2020; Schindler et al., 2017).

Meyer (2014) pointed out that student engagement deserves special attention in online settings because of the diminished opportunities it offers students to engage with the institution, teachers, and peers. Whereas opportunities for study-related support and informal interaction between students and teachers have been shown to be crucial in promoting student engagement in in-person learning settings, such interactions are limited online (Redmond et al., 2018). This limitation seemed to be confirmed in 2020 when online teaching suddenly became the necessary means for educating students in the wake of the COVID-19 pandemic (Tartavulea et al., 2020; Watermeyer et al., 2020). Although some positive effects of online education were found, including better study results (Meeter et al., 2020), many studies reported lower student motivation for studying (Jensen et al., 2020; Means & Neisler, 2020; Stevens et al., 2020) and reduced student engagement in online education (Ali et al., 2020; Martin, 2020; Walker & Koralesky, 2021; Wester et al., 2021).

The omnipresence of online education during the COVID-19 pandemic also provided, however, a unique opportunity to gain more insight into factors that may promote student engagement in online settings. Since more teaching will likely take place online in the future, it is important to learn from the experiences during this period. Several studies described how online teaching during the pandemic affected student engagement in higher education (Ali et al., 2020; Martin, 2020; Roque-Hernández et al., 2021; Stevens et al., 2020; Walker & Koralesky, 2021; Wester et al., 2021). But little attention has been paid to what exactly affects student engagement during online learning activities and, more importantly, *why* student engagement is affected. The aim of the current study is to learn from students' experiences by investigating what promotes their engagement in online learning activities and what underlying mechanisms inform those activities.

2 Theoretical Background and Overview of the Literature

2.1 Student Engagement

The literature on student engagement is vast and has recorded many varying definitions of engagement over time (Martin et al., 2020). This has resulted in a substantial body of research that portrays engagement as a multidimensional concept (Christenson et al., 2012; Fredricks et al., 2004). Student engagement is often conceptualized along three dimensions: behavioral, cognitive, and affective engagement (Bond et al., 2020; Fredricks et al., 2004). These three dimensions of engagement are not ontologically distinct concepts but instead are interrelated (Fredricks et al., 2004).

Behavioral engagement is understood as effort and participation, or students' involvement in learning activities (Fredricks et al., 2004). It is measured through observable behavior, such as whether students attend classes and do their homework. *Affective* engagement encompasses students' attitudes towards their educational environment, such as teachers and peers. These attitudes affect students' drive to engage in learning activities (Fredricks et al., 2004). Affective engagement includes students' expectations, assumptions, commitment, and motivations for learning (Redmond et al., 2018); it is also associated with their sense of belonging to a community or institution and touches upon the emotional states that influence their motivation to learn (Mulrooney & Kelly, 2020; Redmond

et al., 2018). *Cognitive* engagement refers to students' deeper investment in and reflection on their learning process. It appears in students' effort to understand materials and master skills, especially complex ones. Cognitive engagement addresses students' involvement with study materials and their own learning process on a more abstract level (Fredricks et al., 2004).

2.2 Online Learning Activities

Online education or learning is understood as the delivery and reception of teaching through online platforms (Hodges et al., 2020; Means & Neisler, 2020). Online education can be either *synchronous*, taking place in real time, or *asynchronous*, involving prerecorded materials that students watch on their own time (Tartavulea et al., 2020). Online learning activities include all educational activities that students participate in online, such as lectures, seminars, and small group meetings, as well as one-on-one supervision and asynchronous activities, such as contributing to an online discussion platform. Online exams are also considered online learning activities.

2.3 Promoting Student Engagement in Online Higher Education

There is a vast amount of research about what fosters student engagement in higher education, such as attendance, a feeling of belonging, and academic support (Christenson et al., 2012; Martin et al., 2020; Trowler, 2010). There is also ample research on what promotes student engagement in online learning. A systematic review of online learning research conducted by Martin et al. (2020) demonstrated that the largest number of studies focused on student engagement in online learning. Most research has investigated which online learning activities promote the different dimensions of engagement (Schindler et al., 2017); this research includes recent articles on specific strategies for fostering student engagement, such as identifying pedagogical touchpoints (Tualaulelei et al., 2022) or using learning analytics and nudging (Brown et al., 2022). In a literature review on the impact of different forms of computer-based technology on student engagement in higher education, Schindler et al. (2017) found that digital games, followed by web-conferencing and the use of Facebook, had the most influential and positive impact across all three dimensions of student engagement.

There is much less research about *why* and *how* online learning activities promote student engagement. Bond et al. (2020) systematically examined the research on student engagement and various forms of online learning in higher education, and they noted the lack of studies on the mechanisms that facilitate engaging online learning activities, as well as the lack of qualitative research in this area. Only a few recent studies have addressed mechanisms that may explain how online education can foster student engagement (Martin & Borup, 2022; Muir et al., 2019; O'Shea et al., 2015). Two qualitative studies showed that students' engagement with online learning activities may be influenced by factors such as communication, responsiveness, and course design (O'Shea et al., 2015), as well as teacher presence (Muir et al., 2019). Mechanisms from these factors for engaging students in online settings include maintaining good contact between students and lecturers, acknowledging the online status of learners, and providing a clear structure to online students (Muir et al., 2019; O'Shea et al., 2015). Recently, Martin and Borup (2022) synthesized from the literature five online environmental factors that promote learner engagement, which resemble the factors identified previously

by O'Shea et al. (2015) and Muir et al. (2019): communication, interaction, presence, collaboration, and community (Martin & Borup, 2022). However, the latter was a conceptualizing study, which leaves nearly non-existent any empirical literature on mechanisms underlying how online learning activities stimulate the different dimensions of engagement.

2.4 Aims of the Current Study

The current study aims to fill this gap in the research field by empirically exploring *how* student engagement is promoted in online education. In-depth qualitative research into students' experiences is needed to understand what promotes student engagement in online learning settings and, more importantly, how it does this (Bond et al., 2020). To gain more insight into the mechanisms that underlie student engagement, the current study investigated the experiences that students at the University of Amsterdam had with online learning in 2020 and 2021, during the period when teaching at the university went online because of the COVID-19 pandemic. The following research question was investigated: What online learning activities did students experience that promoted their engagement in online education, and *how* did these activities promote their engagement? More specifically, this question was addressed through three sub-questions that correlate with the three major dimensions of engagement: What type of online learning activities promoted students' (1) behavioral, (2) affective, and (3) cognitive engagement, and through which mechanisms?

3 Method

3.1 Sample and Participants

To address the research questions, six online semi-structured focus groups were held on Zoom with students from different social sciences programs in the Faculty of Behavioral and Social Sciences (FMG: Faculteit Maatschappij & Gedrag) at the university. Participants were recruited through personal and university networks with the help of newsletters and faculty contacts. Therefore, the sampling method for this study can be regarded as convenience sampling. Initially, 29 students signed up for this study. Over the course of the study, there was one no-show, and three participants dropped out. This led to the sample for this study consisting of 25 Dutch-speaking students attending bachelor's and master's degree programs in the field of social sciences. Table 1 provides an overview of the composition of the focus groups, the participants' background characteristics, and the FMG programs involved (other programs within this faculty are, e.g., sociology, psychology, and anthropology). Students from similar programs were assigned to the same focus group. Within the groups, there was variation in study level (i.e., bachelor's or master's degree students) and age (approximate range: 20–35 years). Most participants were female ($n=2$ male participants). Recruitment criteria were as follows: (1) participants had to be a bachelor's or master's degree student at the university, (2) they had to be enrolled in a social sciences program in the FMG, (3) they had to speak Dutch, and (4) they had to have experience, as a student, with online education.

Table 1 Focus group composition and participants' background characteristics

Focus group ($N=25$)	Study program	Study level	Recruitment channel
Focus group 1 (n = 4)			
P1	Pedagogical sciences	BA2	Personal network
P2	Educational sciences	BA1	Personal network
P3	Educational sciences	BA3	Personal network
P4	CDE[a]	RM2	Personal network
Focus group 2 (n = 3)			
P5	Forensic orthopedagogics	MA1	Personal network
P6	Educational sciences	MA1	LinkedIn
P7	CDE[a]	RM2	Personal network
Focus group 3 (n = 5)			
P8	Pedagogical sciences	BA3+[f]	Pitch during class
P9	Educational sciences	MA1	Personal network
P10	CDE[a]	RM2	Personal network
P11	CDE	RM1	Newsletter
P12	Educational sciences	MA2	LinkedIn
Focus group 4 (n = 4)			
P13	Pedagogical sciences	BA1	Pitch during class
P14	CDE	RM1	Personal network
P15	Forensic orthopedagogics	MA1	Personal network
P16	CDE	RM2	Personal network
Focus group 5 (n = 5)			
P17	Communication sciences[b]	MA1	College Communication Sciences
P18	Communication sciences[c]	MA1	College Communication Sciences
P19	Communication sciences[d]	RM2	College Communication Sciences
P20	Communication sciences[e]	MA1	College Communication Sciences
P21	Communication sciences[e]	MA1	College Communication Sciences
Focus group 6 (n = 4)			
P22	ISW	BA3	ISW teachers
P23	ISW	BA3	ISW teachers
P24	ISW	BA2	ISW teachers
P25	ISW	BA2	ISW teachers

P participant, *CDE* Child development and education, *ISW* Interdisciplinary social sciences, *BA* Bachelor's degree, *MA* Master's degree, *RM* Research master's degree

The number that follows a student's study level indicates the year of the degree program in which the student is currently enrolled

[a]Clinical track, [b]Corporate track, [c]Political track, [d]Professional track, [e]Persuasive track, [f]Study beyond the 3rd year of a bachelor's degree

3.2 Procedure

This study was approved by the Ethics Review Board of the faculty. All participants took part in one semi-structured online focus group that lasted a maximum of 85 min (range: 77–85 min). The size of the focus groups ranged from three to five participants.

Participants received an e-mail that contained an information letter about the research project, a link to an online informed consent form, and a link to a brief background questionnaire in Qualtrics that asked about their study program, whether they were full-time or part-time students, their study year, and their prior experiences with online education. Participants were also requested to indicate their availability on an online schedule. Both one week and one day prior to the focus group, students received a reminder, including the link to the Zoom meeting and practical information. All focus groups took place online via Zoom, and audio and video were recorded with the consent of the participants. The personal data that was collected about individual participants was subsequently disconnected from what they said in the focus groups, to ensure that participants were less likely to be traceable based on their contributions.

To evaluate the focus group protocol, a pilot focus group was conducted with four students. This led to no major changes. The scripted procedure for the focus groups was as follows: After a walk-in of ten minutes and a short round of introductions, a warming-up activity was performed that asked participants to think of one keyword that described online education for them. After this warm-up, a more substantive discussion was kicked off when participants were briefly introduced to the Zoom whiteboard tool and then asked to write on it positive and consecutively negative experiences regarding their engagement. The question about positive experiences was "What activities stimulated your engagement during online learning activities?" and the question about negative experiences was "What activities diminished your engagement during online learning activities?" After participants used their answers to discuss their online experiences, they were asked about their preferences for future education, especially concerning online learning, by responding to the following short scenario:

> Imagine that the Corona crisis is over and we are back to normal. Classes can take place on campus again, but due to Corona, we also have more experience with online education. According to you, what aspects of online education should or must still have a place in future education in view of promoting student engagement?

This activity was added to provoke more thoughts from students about engaging in online educational activities rather than to identify their wishes and preferences for the future. After they responded to the scenario, the session was wrapped up. No focus groups deviated significantly from the protocol.

3.3 Data Analysis

All recordings were transcribed by the researcher. Pseudonyms were used to respect the privacy of participants. Pilot data was also used for the analyses. The transcribed materials were coded, first deductively and then inductively, and they were analyzed by the first author using the software program ATLAS.ti (Version 8). Table 2 provides an overview of the coding scheme and the different phases of coding that were performed. The first phase of deductive coding identified the engaging activities that the students mentioned (see column 3 and 4 in Table 2 for these activities). In a second deductive phase, these activities were coded as contributing to one or more of the three dimensions of student engagement spelled out by Fredricks et al. (2004), and within these dimensions the activities were coded as either synchronous or asynchronous (in Table 2, the dimensions of engagement appear in column 1 and the synchronous and asynchronous activities appear in columns 3 and 4). The third, inductive phase of coding categorized the coded activities (within each

Table 2 Coding scheme

Dimensions	Mechanisms	Synchronous online learning activities	Asynchronous online learning activities
Behavioral engagement	Promote attention and focus	Use breakout rooms for small group assignments Include informal activities (e.g., fun introductory activities) Use polls[a] Have cameras turned on Take sufficient breaks Teacher strategies: -Clearly communicate goals and structure -Ask questions -Give turns -Encourage discussion	–
	Stimulate effort	Work on assignments with peers and teachers present: -During lectures -After lectures ("sticking around") -During special separate meetings ("walk-in moments") Present pitches after assignments in breakout rooms	Offer pre-recorded videos[b] Organize discussion threads on Canvas[c] Include compulsory preparatory assignments
	Break barriers	Use polls Have cameras on and sound unmuted Give turns	–
	Provide flexibility	Offer lectures and work groups Arrange one-on-one meetings (e.g., thesis supervision)	Offer pre-recorded videos and lectures

Table 2 (continued)

Dimensions	Mechanisms	Synchronous online learning activities	Asynchronous online learning activities
Affective engagement	Promote a group feeling	Have cameras on and sound unmuted Include informal activities (e.g., fun introductory activities, such as the "million-dollar question") Work on assignments with peers and teachers present: -During lectures -After lectures ("sticking around") -During special separate meetings ("walk-in moments") Teacher strategies: -Check in with students -Facilitate interaction between students	Arrange WhatsApp groups for peers and teachers Interact on Canvas (e.g., in the discussion board)
	Encourage interaction	Use the chat function Use breakout rooms for informal contact between students Mentor groups Facilitate interaction	–
	Create a sense of empathy and trust	Include informal activities, e.g.: -Fun introductory activities -Activities during break (e.g., slides with exercises) Mentor groups Teacher strategies: -Invoke personal moments ("little moments of happiness") -Ask open or personal questions	Include institutional activities, e.g.: -Supportive e-mails -Good communication about online exams and assignment deadlines -Observe flexibility in deadlines and schedules Make sure teacher is accessible (e.g., through e-mail, personal contact)

Table 2 (continued)

Dimensions	Mechanisms	Synchronous online learning activities	Asynchronous online learning activities
Cognitive engagement	Generate discussion	Use polls Unmute sound Use breakout rooms for: -Small group assignments -Feedback moments with peers and teacher Include informal activities Teacher strategies: -Ask open and interesting questions -Give turns -Encourage discussion	Offer pre-recorded videos
	Personalize	–	Offer pre-recorded videos

Online learning activities refer to all activities that promoted the different dimensions of student engagement, including institutional and other activities that are not strictly related to learning

[a]Polls using tools such as Kahoot or Mentimeter, [b]Pre-recorded videos such as knowledge clips or micro lectures, [c]On the discussion board in the Canvas environment

dimension of engagement) into types of online learning activities by identifying the underlying mechanisms that made the activities engaging (see column 2 in Table 2). During this coding phase, the second author was continuously consulted to ensure reliability.

4 Results

This section presents the main findings of the study by discussing the different activities that promoted participants' engagement in online learning activities. For each dimension of engagement—(1) behavioral, (2) affective, or (3) cognitive—online learning activities are addressed and organized according to their engagement-promoting mechanisms (see Table 2 for an overview).

4.1 Behavioral Engagement

4.1.1 Activities That Promote Attention and Focus

Remaining behaviorally engaged in online education was challenging for some of the students in the study, as they found it hard to discipline themselves and to develop a daily work structure and rhythm without being physically present at the university. Nonetheless, several students in the focus groups indicated various synchronous online learning activities that promoted their behavioral engagement by stimulating their attention and focus. In particular, several students mentioned that small interactive group assignments in breakout rooms kept them focused and attentive during lectures. Breakout rooms in general helped to stimulate them, as one participant (P4) indicated: "Those breakout rooms showed that you had been listening for a while and that you could do something with a small group. That can really activate you, at least me." Another student also described how interactive activities kept them focused: "I am very easily distracted online and especially when something interactive is used, you are drawn back to it" (P1).

Informal activities were also mentioned by some students as helping to gain their attention at the start of a lecture, rather than starting with formalities or dry theory:

> I once had a lecture that started with a picture with all kinds of animals and moods on it, asking us like which animal do you feel today. You know, a nice introduction that everyone can laugh about and then you are instantly a little more involved in the lecture than when you are immediately pulled into the theory. (P4)

Besides interactive and informal activities, clear communication of goals and structure was mentioned by several students as important in promoting their behavioral engagement: it made them aware of the structure of the course, which bolstered their attention and focus for a while. Multiple students also mentioned sufficient breaks as important for keeping their attention and focus. Lastly, the teacher asking questions, giving turns to students, and encouraging discussion all promoted behavioral engagement, according to most students in the study, because these activities kept students on their toes.

4.1.2 Activities That Stimulate Effort

Several online learning activities stimulated students to put effort into learning tasks. These activities include students giving presentations or making a pitch after working on a group

assignment in a breakout room. Time spent working on assignments online with peers also stimulated effort for several students. Sometimes the teacher in these Zoom sessions was present to answer questions, which could occur during or after a lecture ("sticking around") or reserved for a separate time by the teacher ("walk-in moments"). According to students, not only did these Zoom sessions help them put effort into working on assignments and completing them; they also made it easier to ask for help and ask questions that could not be asked during lectures. Overall, online learning activities made the interviewed students more actively involved with their course work, which in turn affected their cognitive engagement with the course.

Several asynchronous activities also stimulated effort. For instance, watching prerecorded videos and contributing to online discussion boards, which appear on the Canvas learning management system (LMS), made students put more effort into participating both before class and during lectures. Some of the participating students also mentioned that compulsory preparatory assignments got them acquainted with the materials prior to lectures, engaging them beforehand and leading to their greater engagement during lectures.

4.1.3 Activities That Break Barriers

Behavioral engagement was also promoted by activities that break barriers: i.e., activities that lower the barrier for students to speak, participate, and contribute to discussions. Online learning environments can inhibit some students from participating, but online polls, like Kahoot or Mentimeter, made it easier and more comfortable for students to start talking. As one student noted: "Those polls often give some kind of push to talk about things […]. That steppingstone to start talking and tell something, which for some might be just a bit too much to do in one go" (P5).

Some students noted that activities that generated discussion and conversation helped make them feel comfortable talking. One student described how this process worked: "If a discussion is really being provoked, the conversation just gets going a bit and then you have already heard each other's voices once, which makes it a little easier the next time to be able to start a discussion again" (P1). Several students also noted how the barrier to speaking was lower in smaller groups when they were required to unmute and turn their cameras on. This setting also engaged more silent or withdrawn students; as one student described: "Sometimes, people are less likely to say something when you first have to unmute, which means the same people talk all the time" (P10). Other students also mentioned that peers having their cameras turned on helped them stay involved and engaged instead of searching for distractions or tuning out.

Lastly, teachers giving turns to students helped break barriers to their speaking, as this student explained: "I just think it works better if a teacher […] really gives turns or pays attention to who has already said a lot and whom hasn't yet, because […] often there are students who really have something to say, but I think they are not comfortable to do so at that moment" (P17).

4.1.4 Activities That Provide Flexibility

Most of the students in the study saw as an advantage of online education the flexibility it gave them to choose the location where they followed lectures. By letting students attend lectures more easily and often, this flexibility stimulated behavioral engagement. Also, meeting with teachers online, such as for thesis supervision, was considered more

convenient than meeting on campus. Several students also mentioned that teachers were more accessible through Zoom.

Asynchronous activities, such as pre-recorded videos and lectures, were mentioned by most students as giving them the chance to experience their education at their own time, pace, and location. For example, one student indicated how she preferred to listen to lectures online and in her own time: "I'm actually never present at a live lecture, because I just like getting my notes right the first time by being able to rewind a bit if I cannot hear it" (P25). Several students also noted that meeting with peers to work on course assignments became easier and more manageable online, especially in larger groups. Several students in the study found that pre-recorded lectures were useful for preparing for exams and gave them the freedom to follow the lecture at their own time and pace. Students in the focus group especially liked recorded materials in addition to lectures that could complement other study materials, such as readings and contact moments. Depending on their personal preferences, students' use of pre-recorded lectures have different effects on their behavioral engagement.

4.2 Affective Engagement

4.2.1 Activities That Promote a Group Feeling

Online learning activities promoted the affective engagement of many of the study's participants by helping to create a group feeling, even though the activities were often not intended to have that effect. For example, having cameras on and being unmuted in small groups created less anonymity, according to some students, and gave them a sense of being together. Fun introductory and informal activities were also mentioned as stimulating affective engagement, much as they stimulated behavioral engagement. An example of such an activity is the "million-dollar question," described by one of the interviewed students:

> You had to design and briefly explain a research proposal that you had never investigated before, which was not really up your alley, but which you thought was very important to investigate. Then you introduce yourself based on that, on why you thought it was important, so you got to know each other more personally right away […]. This way, you also remembered fellow students much better, making it easier to talk to each other or send a message. (P10)

Similarly, several participants noted that online meetings that were organized to have students work together not only made students put effort into an assignment but also gave them a feeling of being part of a group. One student also considered it important to have the teacher check on the students: "A teacher who often asked, 'How was your weekend?' at the beginning of the lesson, and then he asked this to a number of people, which makes it seem as if you create some kind of bond within the group" (P21). This bonding was indicated by another student as an important goal for the teacher in online settings: "As long as things remain online, a teacher's role should also be that of a connector" (P20).

Some asynchronous activities also promoted a group feeling that fostered affective engagement for some of the interviewed students. For a feeling of belonging to the course, several students valued WhatsApp groups that included both teachers and fellow students, while others thought that Canvas promoted affective engagement, provided that the teacher used it well: "It really depends on how the teacher uses it

[Canvas], because the moment you take it seriously and a teacher also provides feedback in it […]. Then I think it's a nice tool, also when other people can respond to each other" (P6).

4.2.2 Activities That Encourage Interaction

According to the participants, affective engagement was also promoted by activities that stimulate interaction. The chat function was mentioned as a means for students to reach out to the teacher and each other, as pointed out by one student: "Through the chat, I have seen that people are brought together because someone asks a question" (P6). However, some students indicated that the chat or polls could also decrease interaction, especially when cameras are turned off:

> If you work a lot with polls or via the chat, […] all questions are only asked in the chat at some point […]. To me, that feels like less interaction […]. When those cameras are off, from what I experienced, the chat is also used more often, making it [interaction] drop even further. (P7)

Some students mentioned that their feeling of being connected to peers was also boosted by using breakout rooms. Breakout rooms created moments to engage and interact with peers and to get to know each other. They also facilitated new contacts: participants were sometimes paired in breakout rooms with students they had not previously met, whereas on campus they would generally interact with students they already knew. An exemplary quote from one student illustrates this:

> I started a minor program last semester and I ended up in a group of people I didn't know at all […] and I noticed that the online environment […] especially forced by those breakout rooms to talk to people, so you "have" to, you can't hide and withdraw yourself […]. So, for me it helped to make contact in a whole new environment. (P22)

Some students in the focus groups commented on how important it is to promote informal interaction in an online setting. Whereas informal interaction happens naturally in real-life settings, it must be encouraged in the online environment, as one student pointed out: "Now [during the Covid-19 pandemic], the attention is very much focused on ordinary informal contact with each other, and this was not the case before because it was self-evident" (P18). This informal contact is exactly what fueled affective engagement for some of the students in the study.

In terms of the teacher's role, most interviewed students agreed that teachers should facilitate contact and interaction between students in an online environment. As an example of this, students mentioned mentor groups as encouraging open discussions among students and facilitating informal interaction. The students in the study were generally positive about mentor groups, as suggested by this comment: "A mentor group is really kind of a summary of all the coffee breaks between lectures, but then in one hour" (P7). This shows how mentor groups may fulfill a different function in online education than in regular on-campus education. Some students in our study who did not experience mentor groups in their classes expressed a desire for them.

4.2.3 Activities That Create a Sense of Empathy and Trust

Several students also considered activities that create a sense of empathy and trust as promoting their affective engagement. The fun and informal activities mentioned above stimulated an overall feeling of togetherness with the group and teachers. One student gave an example of how a teacher engaged students during the break:

> During the break, she [the teacher] had a special PowerPoint slide reading: "count the number of people you see outside" […] or she had written down certain stretching exercises […]. Anyway, very thoughtful and compassionate to our needs, showing involvement or that they [the teacher] had really made an effort. (P13)

Another student described how a teacher created "little moments of happiness" ("geluksmomentjes"):

> That [teacher] could really say, "don't touch the paper for a while, enjoy the snow" […] because of this, you also build a kind of personal bond with the teacher […]. Yes, very small simple things, making you see that the teacher is also human, so kind of the person behind the teacher. (P19)

These activities helped these students feel appreciated by teachers, leading them to feel more engaged in return. By asking them questions, teachers not only promoted behavioral engagement but activated a sense of affective engagement in these students. It made them feel valued by the teacher and comfortable enough to participate and contribute to the meeting.

The contributions of some of the interviewed students indicate that empathy and trust refer to students' feelings of understanding and being heard not only by teachers but also by the institution. Asynchronous online activities initiated by the institution or teachers promoted affective engagement, according to some students. Among these activities were supportive e-mails and clear communication about online exams and assignments. Apart from the communication itself, the attitude or tone that accompanied the communication from teachers and the institution was important for creating trust, according to some students. This supportive tone includes flexibility in deadlines and schedules and not having a feeling of hierarchy, as this student pointed out: "You are all on one level, instead of the hierarchy portraying that the teacher is 'there,' on that side of the room, and we are all here, on 'this' side of the room. I think this makes you understand each other better in terms of how you are all in this [Covid-19] situation together" (P24). Across the focus groups, there were several students that appreciated the effort from teachers and felt great sympathy from and towards them when they actively tried to empathize with students.

4.3 Cognitive Engagement

4.3.1 Activities That Generate Discussion

Several students highlighted their cognitive engagement as being stimulated by activities that generate discussion. Many of those activities have already been discussed, as they also were mentioned as promoting behavioral engagement: online polls, which generated a deeper discussion about the results; unmuting students in group work, which created more

room for in-depth discussions since students were less inclined to stay silent; and breakout rooms, where students could talk to each other freely and unmuted in small groups.

Several online learning activities that promoted affective engagement also fostered cognitive engagement. For example, several students mentioned that informal moments such as coffee breaks or catching up at the start of a lecture could set the tone of the meeting and potentially stimulate more in-depth or high-quality conversations. As one student noted:

> A teacher encouraging personal conversations […] made it much more relaxed to go into class and during coffee breaks, that you do not talk about your studies but can simply get to know each other. I do have the idea that afterwards, it was very conducive to the discussion during a lecture. (P18)

When teachers planned online feedback moments for assignments, several students felt more engaged not only with peers and the teacher but also with the assignment itself, pointing towards cognitive engagement. As this student described: "The more feedback moments you have, the more you are involved in an assignment […]. Because of that, you really have the idea that there is much more of a learning curve" (P17).

A teacher who asks open questions, gives turns, and encourages discussion promoted both behavioral and cognitive engagement for some students. Asking interesting questions provoked more discussion and input from students and got more students to interact, as this student pointed out:

> I think it really depends on a lecturer knowing how to use the digital environment […]. I do not think it has to be the digital environment as such, but that it depends on a lot of factors, including a teacher who knows well how to engage everyone and who can make it interesting. (P22)

Several asynchronous activities could also generate discussion, according to some students in the study. Pre-recorded videos about the basic theory made room for more room for discussion and going into depth with the materials during lectures. And watching pre-recorded videos such as micro lectures could make room for discussion during lectures, thereby promoting cognitive engagement. As one student described:

> With those micro lectures, I really had the idea that the teacher recorded a video beforehand and then you felt much more confident about the subject that you will discuss afterwards. You can think about it for a while, and then you can really have a discussion of good quality. Then everyone also participates better. (P18)

4.3.2 Activities That Personalize

According to students' contributions, several asynchronous activities involved personalization to stimulate students' cognitive engagement before online lectures took place. For instance, pre-recorded videos enabled some students to better customize education to their own needs and preferences. These students noted that the videos were especially useful for students with little prior knowledge about a course and the theories taught, for students who sought further explanation, or for students who wished to immerse themselves in the study materials. The videos also invoked deeper learning in students, as one student explained:

> A knowledge clip ["kennisclip"] is posted online, this is already background, so you can just catch up with this yourself […]. And also for myself, because if there

is something that I no longer recognize or do not know anymore, that you can just quickly watch a knowledge clip about something that covers the basics. (P6)

5 Discussion

In this study, we identified learning activities and their underlying mechanisms that promote behavioral, affective, and cognitive student engagement in online learning environments. Behavioral engagement was found to be enhanced through the mechanisms of *promoting attention and focus*, *stimulating effort*, *breaking barriers*, and *providing flexibility*. For most of the students, affective engagement was stimulated through the mechanisms of *promoting a group feeling, promoting interaction*, and *creating a sense of empathy and trust*. Finally, for the students in our study, cognitive engagement was promoted through the mechanisms of *generating discussion* (in synchronous activities) and *personalizing* (in asynchronous activities). Several activities were identified that trigger these mechanisms.

The current study addressed several gaps that were identified in previous literature (Bond et al., 2020; Salas-Pilco et al., 2022). First, it gave insight into the mechanisms that make online learning activities engaging rather than focusing on the engaging activities themselves. Previous studies have pointed out that not much is known about why and how online learning activities can foster student engagement (Bond et al., 2020). Particularly, whereas mechanisms of affective engagement have received some attention (Martin & Borup, 2022; Muir et al., 2019; O'Shea et al., 2015), mechanisms of behavioral and cognitive engagement in online learning have until now remained underexplained. This focus on mechanisms is important, as it has been shown that how students experience learning activities can differ, for example, as a result of context (Huang & Wang, 2023; Martin & Borup, 2022). A focus on underlying mechanisms sheds light on more general principles that may not depend as much on preference and context.

Second, we used qualitative data in the form of focus groups to investigate these underlying mechanisms, answering a call in the literature for qualitative studies of student engagement in online education (Bond et al., 2020). Our methodology has resulted in detailed insights into what makes online learning activities engaging to students, which might not have been uncovered with quantitative research.

Our findings are in line with previous research that has emphasized that interaction and collaboration between students are particularly important for student engagement in online settings (Muir et al., 2019). Our research showed that students indeed appreciated activities that encouraged interaction and promoted a group feeling, such as fun introductory activities or an active discussion board on Canvas. Our findings also suggest that these activities do not occur as a matter of course, which concurs with previous findings that collaboration and interaction are hard to achieve in online education (Dumford & Miller, 2018; Meyer, 2014; Redmond et al., 2018). Our focus groups revealed similar mechanisms as Martin and Borup (2022) suggested, based on their review of existing literature on online learner engagement. They proposed a framework that distinguishes communication, interaction, presence, collaboration, and community as mechanisms for promoting student engagement in online settings. Mechanisms that we found in our study—especially for promoting students' affective engagement, such as activities that create a group feeling and interaction or activities that create a sense of empathy and trust—show considerable similarities with what Martin and Borup (2022) found in their review study.

Our study both confirms and challenges the value of distinguishing student engagement into multiple dimensions (Fredricks et al., 2004). On the one hand, in analyzing how learning activities affected engagement, we found that there was often a significant overlap in *activities* that were considered to enhance the different dimensions of engagement. Online learning activities that stimulated behavioral or affective engagement sometimes also promoted cognitive engagement, for instance by tapping into a form of deeper learning that challenged students' thinking. An example of this overlap can be found in the use of breakout rooms, which stimulated all three dimensions of engagement. On the other hand, we also found that the underlying *mechanisms* that make activities engaging for students are specific to one of the three dimensions. Working in breakout rooms stimulated behavioral engagement by supporting students' attention and focus, it fostered affective engagement by enabling their interaction, and it promoted cognitive engagement by generating discussions. Our findings are thus in line with the three-dimensional engagement model (Fredricks et al., 2004), even as it underlines the interrelatedness of the dimensions that this model distinguishes.

It may be disputed whether the activities that we identified as stimulating engagement, along with the mechanisms that made those activities engaging, are specific to online education. However, several learning activities that were found to promote student engagement in our study are indeed distinctive for online education because they are only possible through the use of online tools, such as breakout rooms that were reported to stimulate all dimensions of engagement. Other engagement-enhancing activities can be considered specific to online education because the online setting requires extra effort compared to on-campus education. Some activities that were mentioned as promoting engagement and that seemed specific to the online setting were not necessarily related to learning. Institutional presence and support, for example, were important for students' feelings of belonging to the institution. Thus, through the mechanism of sense of empathy and trust, regular and clear communication were crucial factors for engaging students online and maintaining their distinctive status as online learners, as O'Shea et al. (2015) and Muir et al. (2019) also observed.

6 Conclusion

6.1 Major Findings

This study has shed light on online learning activities that teachers can use to enhance students' behavioral, affective, and cognitive engagement, and identified mechanisms that explain how these activities stimulate students' engagement. Online activities that stimulated engagement took place both asynchronously and synchronously. Although there was an overlap in online learning activities that were found to enhance the different dimensions of engagement, the underlying mechanisms that make activities engaging for students appeared to be specific to one of the three dimensions, thus shedding light on general principles of promoting engagement that may be less dependent on preference and context.

6.2 Limitations

This study has several limitations. First, the study focused on students' online learning experiences during the COVID-19 pandemic. These experiences likely differed from

students' experiences with online learning in regular times. The abrupt transition to online education due to the pandemic has been characterized as emergency remote teaching (Hodges et al., 2020; Tartavulea et al., 2020; Watermeyer et al., 2020), where students who had not chosen to study online suddenly had to do so. Students were also taught by teachers who mostly had not been trained to teach online. Apart from this sudden shift to online education, daily life also changed drastically because of the COVID-19 pandemic. Students' engagement with learning was likely affected by more than just the fact that teaching moved online; students also had to deal, for instance, with the social isolation they experienced during the lockdowns. Addressing these additional factors, however, went beyond the scope of our research. Although they should be considered when drawing lessons from our study for "normal" online learning, we think that our focus on the underlying mechanisms that make online learning activities engaging (the *how*) has enabled us to suggest some general principles.

Another limitation of our study is that it focused on Dutch students, whereas international students may have had different experiences engaging online education at the University of Amsterdam. Similarly, experiences at the university may differ at faculties outside of the social sciences. Nevertheless, we believe that our findings are not unique to Dutch social sciences students, as these students are not different from other students in ways that are significant to our research question. We therefore think that educators and researchers in non-Dutch countries can benefit from our study. Despite its small sample size and specific population, we think that out study sheds light on the mechanisms that are involved in engaging students in online education.

A final limitation of this study is that it was based on the traditional three-dimensional student engagement model. We did not focus on additional dimensions of student engagement in online learning that have been suggested in the literature, such as agentic engagement (Chiu, 2022) and social engagement (Redmond et al., 2018).

6.3 Implications

This study has implications for theory, future research, and educational practice. Results highlighted the interrelatedness of the dimensions of engagement, whereas in previous research they have often been conceptualized separately (Fredricks et al., 2004). This could imply a need for a paradigm shift, where connections between dimensions of engagement are sought more actively. Other dimensions of engagement, such as agentic engagement (Chiu, 2022) and social engagement (Redmond et al., 2018), could be considered as part of this construct. We would recommend that future qualitative and quantitative research look into online learning activities include these dimensions of engagement, since they could further clarify how the mechanisms behind online learning activities work to promote student engagement, as well as consider their interrelatedness. Also, we would like to encourage future researchers to further investigate the effectiveness of these and other types of online learning activities in promoting student engagement. We hope that our findings will provide inspiration for future research involving other populations of students, a larger sample size, and time periods that are not warped by a pandemic.

Whereas research at the start of the Covid-19 pandemic focused on how the transition to online learning affected student engagement (Stevens et al., 2020), recent studies have sought to improve future online and blended forms of education by examining the best online education practices for promoting student engagement (McKeithan et al., 2021). Teachers—who play a key role in stimulating student engagement in online classes—can

benefit from insights into learning activities that promote student engagement in online settings, as well as from insights into the mechanisms that inform these activities (Demedts et al., 2015; Meij et al., 2021). Our study suggests how teachers may use certain digital tools and online learning activities to stimulate the different dimensions of student engagement. Also, the mechanisms foregrounded in our study can help teachers to choose those tools and activities by clarifying what students need in order to be engaged online.

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Declarations

Competing interests The authors declare that they have no competing interests.

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