# Students' Expectations and Experiences About Engagement Strategies in Online Courses: A Mixed Methods Study

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**Abstract**
Engagement strategies play a crucial role in ensuring engaged and high-quality online learning experiences. In this mixed methods study, we examined online students' expectations and explored their experiences regarding online strategies of peer, instructor, self-directed, and multimodal engagement, using a survey and qualitative interviews. Our quantitative results indicated that instructor engagement strategies were perceived as the most important strategies to be employed in online courses, while peer engagement strategies were viewed as the least important. Qualitative findings suggested that although all four dimensions were perceived to be important and necessary, actual experiences of each contextually varied. In support of prior research, our study demonstrates the importance of the instructor in online courses and offers theoretical implications for online student engagement and practical implications for instructors, instructional designers, and other stakeholders in online education.

Online learning has become an integral component of higher education over the years with the growing number of college students taking at least one online course (Hsu et al., 2019; Martin et al., 2020; Seaman et al., 2018). The popularity of online learning is mainly due to convenience, accessibility, and flexibility of education (Bolliger & Martin, 2018; Picciano, 2019). Despite the steady growth of online learning within the context of higher education, lack of student engagement remains an important challenge and concern in online education (Bolliger & Martin, 2018; Martin et al., 2021). Student engagement is a multifaceted construct that has been defined and studied by researchers within traditional and online learning environments (Dixson, 2015; Fredricks et al., 2004). Student engagement is particularly important to consider in online education because online students are physically separated from their peers and course instructors; therefore, such students have fewer opportunities to interact and engage with them (Martin & Bolliger, 2018; Martin et al., 2020). It is crucial for course instructors and instructional designers to design and implement a wide range of opportunities for online students to engage with their peers, instructors, and their own learning process (Martin & Bolliger, 2018).

To design and implement interactive learning opportunities that foster and maintain student engagement and to help create better online learning experiences and outcomes, there is a need to learn about what is found to be engaging (or not) by online students. Acquiring empirical knowledge about online students' expectations and experiences regarding engagement strategies may help online instructors and instructional designers better address—if not eliminate—lack of student engagement in online learning environments. Although the corpus of literature focuses on student engagement in different contexts, including students' self-reports of their online engagement (e.g., Kucuk & Richardson, 2019; Park & Yun, 2019; Sun & Rueda, 2012), few studies have examined what strategies and activities are perceived to be important and necessary by online students in regard to their own engagement in online courses (e.g., Bolliger & Martin, 2018; Dixson, 2010; Martin & Bolliger, 2018). The problem is that successful online learning experiences are hard to achieve without active student engagement in the learning process. Therefore, the purpose of this mixed methods research study was to examine students' expectations and explore their experiences regarding engagement strategies used in online courses of higher education. Three specific research questions were addressed in this study:

1) What are the expectations of online students regarding engagement strategies in their online courses?
2) How do online students describe their engagement experiences in the online courses?
3) How do online students' engagement experiences in their online courses help explain quantitative differences in their expectations of online engagement strategies?

## Student Engagement in Online Learning Environments

Online student engagement is a complex construct that has been conceptualized and studied in many ways, using different terms and lenses (e.g., presence, collaboration) (Martin et al., 2020). In this study, we conceptualized online student engagement through the lens of interaction in online learning environments. We used the definition of online student engagement as "students' involvement in the online environment connected with the instructor, with peers, with oneself in a self-directed manner and with the multimodal online instructional content to achieve the online course learning outcomes" (Bolliger & Martin, 2021, p. 412).

Following Bolliger and Martin's (2021) framework of online student engagement, we adopted and used Moore's (1989) three types of interaction to conceptualize and measure online student engagement strategies: (a) learner-learner interactions, (b) learner-instructor interactions, and (c) learner-content interactions. According to researchers (Bolliger & Martin, 2018; Martin & Bolliger, 2018), learner-learner interaction refers to online students' interactions with other online learners in the same learning environment through sharing knowledge and collaborative activities. Learner-instructor interaction refers to the course instructor's interactions with their students through different means and channels of communication in the online learning environment. Learner-content interaction refers to online students' intellectual interactions with the instructional content of the course including tasks, activities, and assignments.

Bolliger and Martin's (2021) four-factor model of online student engagement strategies is comprised of peer engagement, instructor engagement, multimodal engagement, and self-directed engagement. In this model, peer engagement refers to online students' interactions and engagement with their peers in the online learning environment and corresponds to Moore's (1989) learner-learner interaction. Instructor engagement refers to online course instructors' interactions and engagement with their students in the online course and corresponds to Moore's (1989) learner-instructor interaction. Self-directed engagement refers to online students' engagement with different learning resources and opportunities to interact with the instructional content and corresponds to Moore's (1989) learner-content interaction. Multimodal engagement refers to both online students' and course instructors' engagement with multimodal content and their use of various forms of technology tools and it also corresponds to Moore's (1989) learner-content interaction. This four-factor theoretical model of student engagement in online learning environments proposed and validated by Bolliger and Martin (2021) informed our examination and exploration of online students' expectations and experiences regarding engagement strategies used in online courses of higher education.

Student engagement has been traditionally conceptualized by educational psychology scholars focusing on several dimensions, mainly behavioral, emotional, and cognitive engagement in traditional in-person learning environments (e.g., Appleton et al., 2006; Fredricks, 2011; Sinatra et al., 2015) but online learning environments have unique affordances and environmental features, such as online presences (Garrison et al., 1999; Shea et al, 2022), interactions (Moore, 1989), and collaboration (Redmond et al., 2018) that significantly influence these different dimensions of the learner engagement itself. The interactions of these engagement dimensions with those unique online environment affordances should also be considered for a complete understanding of the learner engagement in online learning environments (Martin & Borup, 2022). Bolliger and Martin's (2021) four-factor model of online student engagement that has guided this study encompasses those "specific conditions in the online environment in which the engagement is taking place" (Martin & Borup, 2022, p.2).
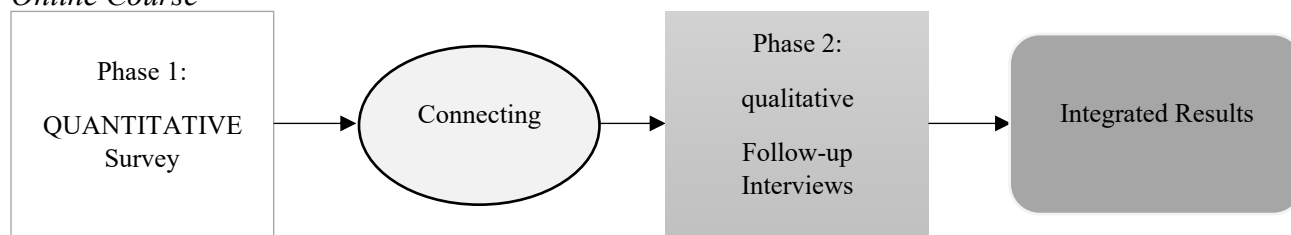
## Methods

The purpose of this study called for the use of mixed methods research approach, which is a methodology that involves intentional collection, analysis, and integration of qualitative and quantitative data (Creswell & Plano Clark, 2018; Tashakkori et al., 2021). In an explanatory

sequential mixed methods design, the quantitative phase is implemented first and followed by a qualitative phase to explain the quantitative results (Creswell & Plano Clark, 2018). In this study, we put an emphasis on the quantitative phase (QUAN → qual) (Morse, 2003) that informed purposeful participant selection and the development of data collection for the qualitative phase. The rationales of using this mixed methods research design were *illustration* and *context*. Illustration refers to enriching "dry" quantitative findings, and context refers to gaining a contextual understanding of a phenomenon that is uncovered through a survey (Bryman, 2008, p. 92). Consistent with the logic of the study design (Figure 1) and rationales, this article first presents the methods and results of the quantitative phase. Then, it describes the procedures for connecting quantitative and qualitative phases with participant selection and the development of the interview protocol followed by the methods and results of the qualitative phase. It concludes with integration of both phases in the final discussion.

**Figure 1**

*Procedural Diagram of Students' Expectations and Experiences About Engagement Strategies in Online Course*



### Quantitative Phase: Methods

The aim of the first, quantitative phase was to examine the expectations of online students regarding engagement strategies in their online courses. This section describes methods of the quantitative phase of the study.

Participants

Convenience and purposive sampling were used to recruit participants who were enrolled in at least one online course in Spring 2021. The survey was administered through the Qualtrics® platform in three different online courses offered by the Learning Sciences and Educational Technology departments within two R1 institutions. One of the institutions was in the Southwest and the other institution was in the Midwest in the United States.

Measures

Our guiding framework drove the selection of the measure in this study. We adapted and administered an online survey developed by Bolliger and Martin (2021) that focuses on four dimensions: (a) peer engagement, (b) instructor engagement, (c) self-directed engagement, and (d) multimodal engagement. Peer engagement and instructor engagement dimensions involve seven items for each, and self-directed engagement and multimodal engagement involve six items for each dimension with a total of 26 items in the online survey. Participants responded to the survey using a 5-point Likert-type scale of "1=Strongly disagree" to "5=Strongly agree" to indicate their level of agreement or disagreement with the importance of an online engagement

strategy employed in an online course. A higher score on an item indicates the higher degree of an online student's expectation regarding an online engagement strategy.

Permission to modify the original survey items to fit the purpose of the current study was granted by the developers of the original survey. We slightly modified each of the items in wording to fit the specific purpose of our study. We split the original self-directed engagement item S-4 "*Students research an approved topic and present their findings in a delivery method of their choice (e.g. discussions forum, chat, web conference, multimedia presentation)*" into two separate items. We did not include the multimodal engagement item M-7 "*Students complete an integrated profile on the learning management system that is accessible in all courses*" because it was not applicable in the context of offered online courses in this study. The modified items were first submitted to expert review since expert opinion is highly recommended to be used at least as a minimum analysis of new or modified items for face and content validity (Hardesty & Bearden, 2004; Morgado, 2017). In addition, we included two open-ended questions in the modified survey to capture students' perspectives about the most and least important factors that played important roles in their engagement as well as other strategies that could be beneficial to their engagement in an online course. The developers of the original scale served as our expert judges, reviewed our modified items, and offered feedback. We made revisions regarding item content, item clarity, and wording accordingly and finalized the survey (Appendix A). The survey with 26 Likert-type items had a good internal consistency reliability, $\alpha = 0.89$, and its subscales: peer engagement ($\alpha = 0.78$), instructor engagement ($\alpha = 0.77$), self-directed engagement ($\alpha = 0.75$), and multimodal engagement ($\alpha = 0.77$). Table 1 presents the original reliability statistics with the reliability statistics obtained in this study.

**Table 1**

*Reliability Statistics of the Engagement Survey*

| Dimension | Original $\alpha$ | $\alpha$ in This Study | $n$ |
|---|---|---|---|
| Peer Engagement | 0.75 | 0.78 | 52 |
| Instructor Engagement | 0.66 | 0.77 | 52 |
| Self-directed Engagement | 0.65 | 0.75 | 52 |
| Multimodal Engagement | 0.75 | 0.77 | 51 |
| Overall Scale | 0.84 | 0.89 | 51 |

Demographic information collected included age, sex, race/ethnicity, major, first-generation student status, year in college (i.e., freshman, junior, senior, sophomore), and institution as the survey data were collected anonymously. Participants were asked whether they would be willing to be interviewed, and if so, to provide an email address.

<u>Procedures</u>

Prior to the data collection, the approvals of the institutional review board were obtained for the first three authors' affiliate institutions. After providing informed consent, participants answered the online survey, typically completed in 15-20 minutes. Quantitative data were analyzed using descriptive statistics (i.e., mean, standard deviation, frequencies). The first and third authors were involved in data collection and analysis with participant identifiers available. The second author was involved in the data analysis process after the first author de-identified the data. The fourth and fifth authors were not involved in the data collection and analysis.

**_Quantitative Phase: Results_**

A total of 52 students took the survey. Participants ranged in age from 18 to 26 ($M$=20.87, $SD$=1.21). Most of the participants were female ($n$=42, 80.8%), White/Caucasian ($n$=42, 80.8%), and not first-generation students ($n$=40, 76.9%). More than one half of the participants were junior ($n$=32, 61.5%) majoring in elementary education ($n$=29, 55.8%). Table 2 provides information about participant characteristics.

**Table 2**
*Demographic Information About the Study Participants (N=52)*

|  | $n$ | % |
|---|---|---|
| *Sex* | | |
| Female | 42 | 80.8 |
| Male | 9 | 17.3 |
| Prefer not to answer | 1 | 1.9 |
| *Race/Ethnicity* | | |
| White/Caucasian | 42 | 80.8 |
| American Indian or Alaskan Native | 4 | 7.7 |
| Asian | 3 | 5.8 |
| Hispanic/Latino | 2 | 3.8 |
| African-American/Black | 1 | 1.9 |
| *Year in College* | | |
| Freshman | 2 | 3.8 |
| Sophomore | 3 | 5.8 |
| Junior | 32 | 61.5 |
| Senior | 15 | 28.8 |
| *First Generation* | | |
| Yes | 12 | 23.1 |
| No | 40 | 76.9 |
| *Major* | | |
| Elementary Education | 29 | 55.8 |
| Music Education | 10 | 19.2 |
| Early Childhood Education | 2 | 3.8 |
| Social Studies Education | 2 | 3.8 |
| Vocal Music Education | 2 | 3.8 |
| English Education | 1 | 1.9 |
| Instrumental Music Education | 1 | 1.9 |
| Language Arts Education | 1 | 1.9 |

| | | |
|---|---|---|
| Mathematics Education | 1 | 1.9 |
| Mathematics | 1 | 1.9 |
| Professional Writing | 1 | 1.9 |
| Special Education | 1 | 1.9 |

To address the first, quantitative research question, we used descriptive statistics. Table 3 provides the number of respondents, mean, and standard deviation for each item in four dimensions. As seen in Table 3, overall the participants perceived online engagement strategies to be important and necessary to be utilized in an online learning environment. All four subscales of engagement strategies had a mean score above 3 (neither agree nor disagree) and two subscales had a mean score above 4 (agree). In addition, eighteen items on the scale had a mean score above 4 and the remaining eight items had a mean score above 3. Of the four dimensions of online engagement strategies, peer engagement had the lowest overall mean ($M$=3.70) and instructor engagement had the highest overall mean ($M$=4.47). Participants perceived multimodal engagement strategies ($M$=3.90) as slightly more important than peer engagement strategies ($M$=3.70) and viewed instructor engagement strategies as slightly more important than self-directed engagement strategies ($M$=4.34). The instructor engagement item "The instructor should send or post regular email reminders or announcements" had the highest mean score ($M$=4.69), while the peer engagement item "Students should be asked to rate each other's performance on collaborative projects" had the lowest mean score ($M$=3.06) on the entire scale of 26 items.

**Table 3**

*Online Students' Expectations About Engagement Strategies by Total Number of Responses, Mean, and Standard Deviation*

| Engagement Strategies | n | Mean | SD |
|---|---|---|---|
| **Dimension 1: Peer Engagement** | | **3.70** | **0.63** |
| Students should introduce themselves to peers using icebreaker activities (e.g., self-introduction discussions, icebreaker games). | 52 | 4.00 | 0.82 |
| Students should work collaboratively using online communication tools to complete assignments. | 52 | 3.77 | 0.94 |
| Students should interact with peers through real-time or asynchronous student presentations. | 52 | 3.73 | 0.97 |
| Students should peer-review classmates' work. | 52 | 3.35 | 1.06 |
| Students should have opportunities to reflect on the course content together with peers. | 52 | 4.19 | 0.60 |
| Students should facilitate online discussions together with their peers. | 52 | 3.83 | 0.94 |
| Students should be asked to rate each other's performance on collaborative projects. | 52 | 3.06 | 1.24 |
| **Dimension 2: Instructor Engagement** | | **4.47** | **0.43** |
| The instructor should send or post regular email reminders or announcements. | 52 | 4.69 | 0.51 |
| The instructor should create a common space for students to contact him/her with questions about the course. | 52 | 4.60 | 0.57 |
| The instructor should provide an online course orientation for students. | 52 | 4.19 | 0.74 |

| | | | |
|---|---|---|---|
| The instructor should post grading rubrics for all assignments. | 52 | 4.60 | 0.63 |
| The instructor should post a due date checklist at the end of each unit or module. | 52 | 4.58 | 0.70 |
| The instructor should structure online discussions with questions and/or prompts for deeper student understanding of the content. | 52 | 4.25 | 0.68 |
| The instructor should refer to students by name in online discussions. | 52 | 4.37 | 0.77 |
| **Dimension 3: Self-directed Engagement** | | **4.34** | **0.41** |
| I should have the opportunity to search for and select applicable materials based on my interests. | 52 | 4.31 | 0.64 |
| I should have the opportunity to use optional online resources to explore topics in more depth. | 52 | 4.33 | 0.51 |
| I should have choices in the selection of readings (articles, book chapters) that drive discussion group formation. | 52 | 4.31 | 0.67 |
| I should have the opportunity to research a topic of my interest after instructor approval. | 52 | 4.48 | 0.58 |
| I should have the opportunity to present my research findings using a delivery method of my choice (e.g., multimedia, web conference, asynchronous discussion). | 52 | 4.21 | 0.70 |
| I should have the opportunity to work on realistic scenarios or cases to apply the course content (e.g., case studies, client projects). | 52 | 4.40 | 0.60 |
| **Dimension 4: Multimodal Engagement** | | **3.90** | **0.63** |
| Students should experience live/synchronous web conferences for class events and/or guest talks. | 52 | 3.92 | 0.76 |
| Instructors should use various features of synchronous communication to interact with students (e.g., polls, whiteboard, chat). | 52 | 4.25 | 0.71 |
| Instructors should create short videos to enhance their instructor presence in the course. | 51 | 4.14 | 0.85 |
| Instructors should use various tools/technologies to provide feedback (e.g., text, audio, video). | 52 | 4.12 | 0.90 |
| Students should post audio and/or video files in discussion threads instead of text only. | 52 | 3.15 | 1.27 |
| Students should interact with course content in different formats (e.g., text, video, audio, simulations). | 52 | 3.83 | 0.92 |

*Notes:* In the calculation of mean and standard deviation (SD), assigned values: Strongly agree=5, Agree=4, Neither agree nor disagree=3, Disagree=2, Strongly disagree=1.

Among the peer engagement strategies, the participants perceived having opportunities to reflect on the course content together with their peers as the most important strategy (*M*=4.19). Among the instructor engagement strategies, instructor providing an online course orientation for students was found to be the least (*M*=4.19) scored item. Among the self-directed engagement strategies, participants viewed having the opportunity to research a topic of their interest as the most necessary strategy (*M*=4.48) and having the opportunity to present their research findings using a delivery method of their choice as relatively the least important strategy (*M*=4.21). Among the multimodal engagement strategies, online students perceived instructors' using various features of synchronous communication as the most important strategy (*M*=4.25), although they viewed students' posting audio and/or video files in discussion threads instead of text only as the least necessary engagement strategy (*M*=3.15).

***Connection from Quantitative Phase to Qualitative Phase***

Quantitative results indicated that there was a variation among the engagement strategies in the survey and some dimensions had higher overall mean scores than others (i.e., instructor engagement and self-directed engagement had overall higher mean scores compared to peer engagement and multimodal engagement). Therefore, the qualitative phase became important in explaining variations in students' engagement experiences in the online courses. After the quantitative data were analyzed, the results were connected with the development and refinement of the qualitative phase, which is called the point of interface in mixed methods research (Creswell & Plano Clark, 2018). The conceptual framework and quantitative results were used to design the qualitative phase, to guide the selection of participants for the qualitative phase, and to determine interview questions.

Based on the overall scores of each participant from each dimension of the survey, we employed maximum variation sampling technique, which is used to select diverse variations to identify patterns (Teddlie & Yu, 2007), to contextually explain different student experiences regarding engagement strategies used in an online course. Accordingly, we determined online students who scored low, medium, or high within one or more dimensions in the survey results. Due to feasibility purposes, we first screened participants who shared their willingness to participate in an interview and provided their email address. Then, we reached out to 12 potential interview participants based on maximum variation in their survey results and invited them for an interview. Four agreed to be interviewed. The interview questions were designed to align with the online student engagement framework by focusing on the lens of interaction in online learning environments (Appendix B). Identified participants who participated in an interview are marked with red circle in Figure 2 for multimodal engagement and peer engagement dimensions to provide an example of participant identification for the interviews.

**Figure 2**

*Identified Interviewees (N=4) Based on the Quantitative Findings*
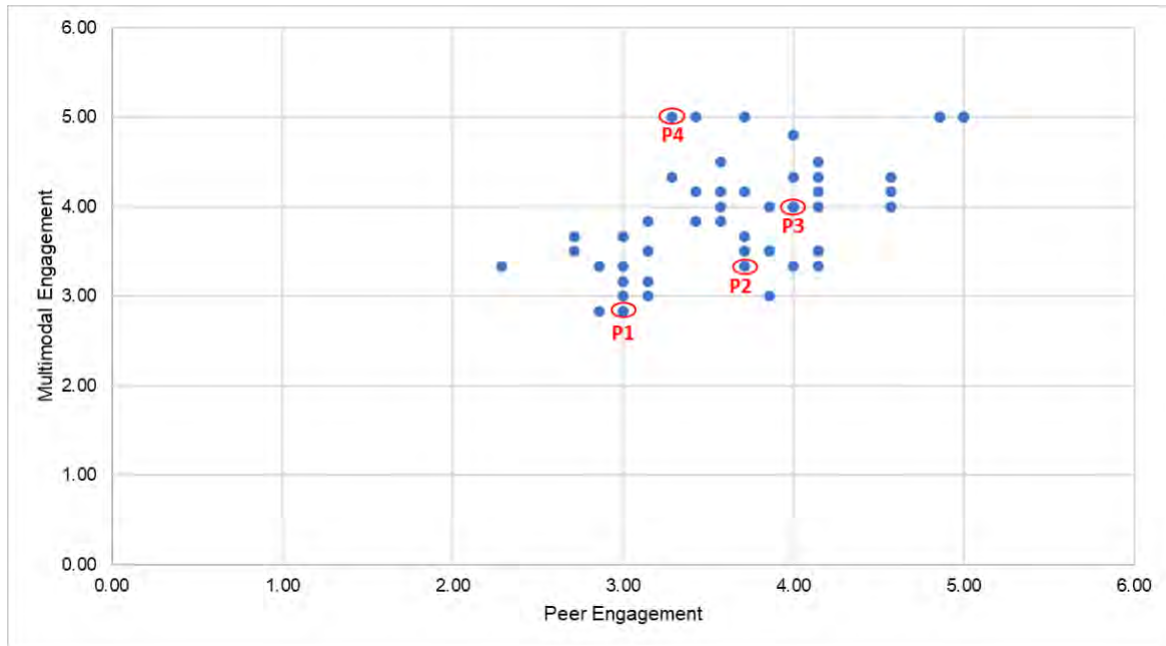


*Note:* "P" represents participant.

### Qualitative Phase: Methods

The aim of the second, qualitative phase was to provide contextual explanation of online students' experiences and expectations about engagement strategies. Because instructor engagement and self-directed engagement mean scores were found to be higher in the survey, the secondary objective of the qualitative phase was to explore in what contexts and how students' experiences and expectations about engagement strategies varied.

Participants

Data were collected from students who scored low, medium, or high within one or more dimensions in the survey results. In the second, qualitative phase of the study, a total of 12 students were invited for an interview based on the quantitative results. A total of four students (two students from each institution) responded to the invite and agreed to participate in an interview. Each interviewee received a $20 Amazon gift card for their participation in the interview. Participants were described using P followed by a number. For example, P1 means first qualitative participant.

Data Collection and Analysis

Guided by the online student engagement framework, we designed the interview protocol by focusing on the lens of interaction in online learning environments. The interview protocol consisted of seven open-ended questions as well as probes and follow-up questions. The interviews lasted about 30-35 minutes and each interview was conducted via Zoom and audio and video-recorded with the permission of each interviewee. The interviews were transcribed verbatim and checked by the first and third authors for accuracy and consistency. Data retrieved

from open-ended survey responses and interviews were analyzed inductively using thematic analysis technique (Braun & Clarke, 2006) to identify patterns and deductively using a theoretical framework (Miles et al., 2014) to explain the patterns based on the online student engagement framework used in this study. Memoing and triangulation were used for the validation of the qualitative data. MAXQDA 2020 qualitative and mixed methods research software was used for quantitative, qualitative, and mixed methods integrated analyses (VERBI Software, 2019).

### *Qualitative Phase: Findings*

To address our second, qualitative research question, we present themes that emerged from data analysis in two major sections: (a) findings from the open-ended survey responses and (b) findings from the interviews.

Findings from the Open-Ended Responses

In the open-ended questions in the survey, participants were asked about the most and the least important things that played a role in their engagement in an online course. The results showed that the interviewees in general agreed upon some main expectations for their engagement in online course environment. The common points of agreement in the most important things for online engagement were "communication and interaction with professor and peers," "a balanced distribution of autonomy and structure," "clear and simple class schedule," "multimodal engagement with the content," and "constant instructor engagement and intrinsic motivation to teach." In addition, interviewees viewed online learning environments as different from in-person experiences and found efforts of instructors to make online courses like in-person course format unnecessary. This can be seen from the common points emerged from their responses to the least important things for their engagement in online learning courses. Some students complained about the lack of flexibility and instructors forcing students to stick to fixed rules like they do in-person classes. There were different forms of flexibility expectations such as meeting at a different time and date, turning their cameras off or being allowed to eat or drink during the class.

Findings from the Interviews

Findings from the interviews are presented in four major themes in line with the engagement framework used in the conceptualization of this study: (a) peer engagement, (b) instructor engagement, (c) self-directed engagement, and (d) multimodal engagement. Sub-themes emerged within each of these major themes. Figure 3 depicts the four major themes and subthemes along with the relevant quotes.

**Figure 3**

*Visual Representation of Themes, Sub-themes, and Quotes*
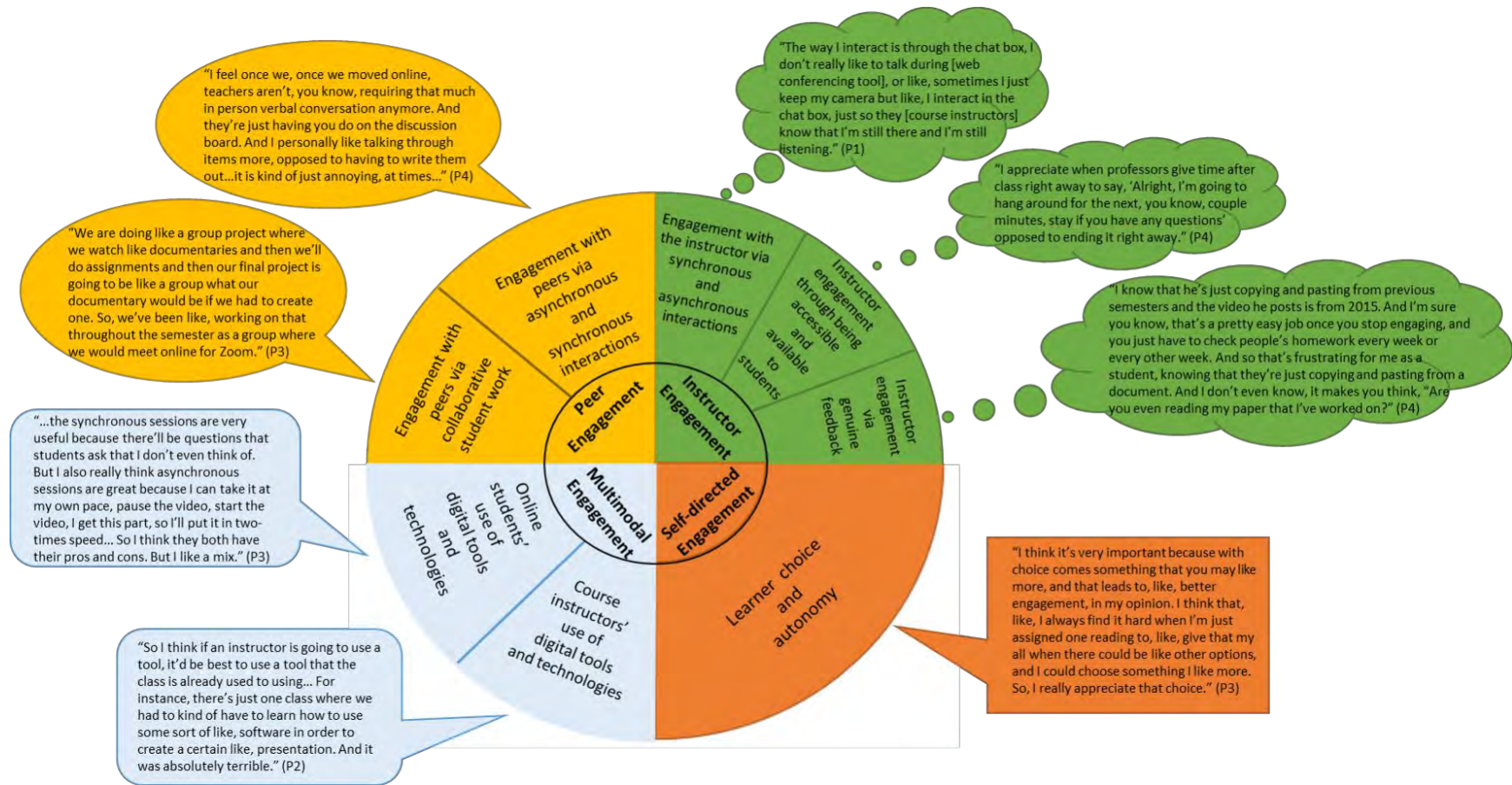
**Peer Engagement.** Under the major theme of peer engagement, two sub-themes emerged. These sub-themes characterize different manifestations of peer engagement as perceived and experienced by the interviewees.

***Engagement with Peers via Asynchronous and Synchronous Interactions.*** One of the manifestations of peer engagement was engagement with peers via asynchronous online discussions. P1 explicitly stated "I feel like we must engage in discussions," indicating the perceived importance of online discussions as an important instructional strategy. She added, "There's like review games here and there, like in one of my courses, but mostly it's discussions."

Lack of peer engagement on the asynchronous discussion board was also mentioned by three participants. P1 who stated that once she posted her initial response, she did not go back and look at other people's responses, thereby making it impossible to participate in content-related dialogues with the peers and truly get engaged in learning. When asked about using other digital tools such as a video response tool to increase peer engagement, she answered, "I think it's fun to watch others…I would rather do that [video respond] then post to a discussion board, I find it more enjoyable for myself to respond to peers on [video tool] than I do typing to them."

Peer engagement was also experienced through synchronous meetings (e.g., Zoom) in which the students interacted with their peers and their course instructor in different ways, such as breakout room discussions and activities. As P2 described, "I think doing group activities and breakout rooms has been pretty successful, I guess, in like, creating more engagement, and some courses and some courses could probably start to do that more." The quality of peer engagement through synchronous meetings was also influenced by the nature of the course and the instructor's teaching style. For example, P4 mentioned that she had different amounts of peer engagement in different online courses depending on how the course was structured and implemented by the course instructor. She explained that some of her online courses were student-centered, whereas others were mostly instructor-dominated.

The quality of peer engagement through synchronous meetings was also perceived and experienced as being influenced by peers themselves. Depending on how willing the peers were, P4 reported having experienced peer engagement at different levels of quality. Having to interact and engage with peers through virtual means rather than face-to-face was still considered a challenge to achieving optimal student engagement in online courses. For example, P2 believed it would be much easier for her to get to know her peers if the course was not online, attributing her more shallow engagement with her peers to the online nature of the class. Similarly, she mentioned not being able to see all the reactions from her peers during synchronous activities or presentations since in some online courses students simply have their cameras turned off, which in turn considerably reduces peer engagement. In support of this, P2 stated, "Engagement in an online class will always be lower than in an in-person class."

***Engagement with Peers via Collaborative Student Work.*** Another manifestation of peer engagement was experienced through collaborative student work, such as group assignments or final projects for which the students were expected to collaborate with each other during the semester.

Another form of peer engagement was embedded in those collaborative assignments and projects in the form of peer evaluations by means of which the students evaluated each other's contribution to those collaborative projects. Such peer evaluations were also perceived as further contribution to peer engagement as each student felt more motivated and obliged to actively and meaningfully engage with their peers to produce the joint work. As P3 pointed out, "Based on the questions that, like, my peers are going to evaluate me on, I think that makes me try harder…" However, the amount of peer evaluation work the students were expected to do was also important to their motivation to evaluate their peers. As P4 explained, "If I don't do over six of them, I do enjoy it. And it depends on the survey, and how often I had this…" Regarding student collaboration, P4 made an important point that "There's typically no collaboration when it comes to homework assignments," adding that she still had collaborative work experience with her peers in in-class activities or final projects, just like the other interviewees indicated.

**Instructor Engagement.** Under the second major theme of instructor engagement, three sub-themes emerged. These sub-themes characterize different manifestations of instructor engagement as perceived and experienced by the interviewees.

***Engagement with the Instructor via Synchronous and Asynchronous Interactions.*** One of the manifestations of instructor engagement was engagement with the online course instructor via synchronous interactions. Communication through the web video conferencing tools was commonly expressed by the interviewees as a means of engaging with the online course instructor. In terms of the challenging job of online course instructors to keep their students engaged and on task during online learning, P2 mentioned "There's always going to be like a phone nearby, or like another computer screen" as potential obstacles to true engagement online.

The existence of several potential distractors in online students' physical study spaces seemed to pose a serious challenge to student engagement, which would actually call for more systematic and structured instructor engagement so that the instructor could reach out to the students in different ways (e.g., emails, reminders, announcements, meetings) just to make sure that they were on track and following the course in a truly engaged manner. As an example of this systematic and structured instructor engagement with the online students, P3 mentioned regular meetings organized by her online course instructor for student-instructor engagement throughout the semester. P3 also seemed to be satisfied with the level of her professors' instructor engagement in online courses. The online course instructor's regular communication about the expectations and requirements during the semester was also perceived to be very important by the interviewees. For example, P3 pointed out, "And I think that is very helpful, because, like, it's very clear what's expected with like, through each week." On the other hand, P4 did not experience such regular communication with the online course instructor but rather such communication was used to make specific reminders only when necessary during synchronous class times.

In terms of instructor engagement via asynchronous interactions, online discussions were also reported to be another venue where instructor engagement was experienced by the interviewees. For example, P4 mentioned experiencing different structures of online discussions in terms of the questions and prompts given by the course instructors and she seemed to perceive

those structured online discussions as helping to keep herself engaged and on track in terms of the course content to be covered.

Two interviewees, P3 and P4, reported experiencing some sort of a course orientation provided by the instructor. P3 mentioned having an orientation module where the online course instructor gave personal information about themselves and the course components and the syllabus, always via a video in which the course would be navigated by the course instructor for the students. P4 explained that their course orientation was done in her online courses through a welcome email asking the students to get themselves acquainted with the learning management system of the course and the course components.

***Instructor Engagement Through Being Accessible and Available to Students.*** Instructor engagement was also perceived and experienced through the online course instructors being accessible to their students. For example, P2 mentioned that there was almost no engagement with the online course instructor at all, especially during the transition period of COVID-related emergency remote instruction. She stated that there would not be any way to ask questions without sending an email to the course instructor. Instructor engagement through being available and accessible to the students was also perceived to be valuable by P4 as reflected in Figure 3.

***Instructor Engagement via Genuine Feedback.*** Another manifestation of instructor engagement was the quality of instructor feedback. P4 mentioned that in one specific online course she took, the feedback she received from the course instructor was exactly the same across all assignments, which frustrated her deeply. She seemed to imply that lack of genuine feedback about her work was detrimental to her engagement as an online student.

**Self-Directed Engagement.** Under the major theme of self-directed engagement, we only have one sub-theme since self-direction, autonomy, and choice were not commonly expressed by all the interviewees.

***Learner Choice and Autonomy***. The interviewees stated that they usually had all the readings and learning materials predetermined and provided by their online course instructors. However, having choice and autonomy while, for instance, deciding to read an article or selecting a digital tool to present something was perceived to be important by the interviewees. Having choice in the selection of learning materials also seemed to influence P3's motivation to study in the course and to foster their overall course engagement since they had the opportunity to choose and study something that they wished to. Self-direction was also expressed to be supported by the very nature of online learning itself. For example, P3 stated that online learning developed her self-directed and self-regulated learning skills including time management.

**Multimodal Engagement.** Under the major theme of multimodal engagement involving both online students and online course instructors' use of tools and technologies for learning and instructional purposes, we have two subthemes.

***Online Students' Use of Digital Tools and Technologies.*** The interviewees reported using a wide variety of presentation software and digital tools to work on and present their course work including their final projects. For instance, P3 stated that a lot of times, she used the

studio software embedded in their learning management system and prepared slides with voiceover to present her final projects asynchronously, although she did not experience giving a live presentation for an online class.

Online students' use of different digital tools and technologies also seemed to improve their engagement with the course content and improve their learning experience overall. For instance, P4 mentioned using a video response tool and finding it more enjoyable to watch their peers' responses and respond to their videos rather than typing to them in a discussion board, indicating the engaging power of such digital tools in online courses which seemed also to help better engagement with the course content. As she described, "I'd say it's more engaging, not that their content is less boring, but I do enjoy viewing it with a video."

***Course Instructors' Use of Digital Tools and Technologies.*** The interviewees usually indicated that their online course instructors used different digital tools and technologies, as much as they could, to foster both their own instructor engagement and presence and student interaction and engagement with the course content. We also found that the course instructors' multimodal engagement through their use of various features of synchronous communication such as breakout rooms, opinion polls, and chats in video conferencing sessions promoted and supported the online students' engagement with the content and the course overall.

One interesting point regarding the relationship between online students' multimodal engagement and course instructors' multimodal engagement was raised by P2. She drew attention to the importance of asking the students to use the tools that are more likely to be known and familiar among the students. Another similar connection between instructor multimodal engagement and student multimodal engagement was pointed out by P4, who indicated that some of her online course instructors were more willing to allow video responses than others to be used in the discussion threads instead of text only. The instructor's encouragement of multimodal responses to the discussion boards seemed to influence the multimodal engagement of the online students as well. As P4 stated, "I'm not definitely opposed to typing. That's what I use the majority of the time, but I do enjoy making an audio recording and then submitting that or a video as well."

## Integration

To address our third, mixed methods research question, we explain integration strategies used in this study and provide meta-inferences to facilitate the interpretation of both phases. Fetters et al. (2013) describe three levels of integration in a mixed methods study: (a) design, (b) methods, and (c) interpretation and reporting. At the design level, we used one of the three core designs, namely explanatory sequential mixed methods design, in this study. At the methods level, integration occurs through linking data collection and analysis of quantitative and quantitative methods using different approaches (Creswell & Plano Clark, 2018). We used a *connecting* approach as we sampled participants of the qualitative phase and developed our interview protocol based on the quantitative results. We also used *merging* as we brought quantitative and qualitative results together for analysis. At the interpretation and reporting level, we used a *joint display* approach, which allows researchers to draw out new insights using visual tools (Fetters et al., 2013). Table 4 is organized by research questions and presents the quantitative and qualitative findings as well as integrated results.

**Table 4**

*Joint Display of Students' Expectations and Experiences about Engagement Strategies in Online Courses*

| | Quantitative Results | | | | | Qualitative Findings | Mixed Methods Integrated Findings |
|---|---|---|---|---|---|---|---|
| P_ID | MPE | MIE | MSDE | MME | Overall Survey | Themes | Meta-Inferences |
| P1 | 3.00 ⬇️ | 4.14 ⬆️ | 4.00 ➡️ | 2.83 ⬇️ | 3.50 ➡️ | P1 emphasized the importance of *engagement with peers and instructor* through online asynchronous and synchronous interactions. | Instructor and self-directed engagement were primarily expected for effective engagement in online learning. |
| P2 | 3.71 ➡️ | 4.43 ⬆️ | 3.67 ➡️ | 3.33 ➡️ | 3. 81 ➡️ | P2 expressed the critical role of *instructor engagement* and lack thereof regarding the other dimensions of engagement. | Instructor is a critical factor influencing, if not determining, the level and quality of student engagement. |
| P3 | 4.00 ➡️ | 3.86 ➡️ | 4.00 ➡️ | 4.00 ➡️ | 3.96 ➡️ | P3 highlighted the value of self-directed and multimodal engagement particularly enriching her online learning interactions and experiences. | Choice and personal interest indicating self-directed engagement and use of different technologies indicating multimodal engagement contribute to high-quality online student engagement. |
| P4 | 3.29 ➡️ | 5.00 ⬆️ | 4.17 ⬆️ | 5.00 ⬆️ | 4.35 ⬆️ | P4 emphasized the challenge of maintaining engagement with peers and underlined the value of genuine instructor feedback. | Instructor engagement experienced by online students through genuine scholarly interactions and student work is critical to student engagement, while peer engagement could be more volatile. |

*Note:* P_ID=Participant ID; I=MPE= Modified Peer Engagement; MIE= Modified Instructor Engagement; MSDE= Modified Self-Directed Engagement; MME=Modified Multimodal Engagement. Below average, at average, and above average categories are defined by mean ± standard deviation.

⬇️=Below average; ➡️= At average; ⬆️=Above average.

# Discussion

The purpose of this study was to gain a better understanding of students' expectations and experiences regarding engagement strategies used in online courses. The quantitative results of the study indicate that the participants overall perceived online engagement strategies regarding peer engagement, instructor engagement, self-directed engagement, and multimodal engagement to be important and necessary to be utilized in an online learning environment. The qualitative findings suggest that the participants' actual experiences of engagement strategies varied contextually. Integrated results confirmed the importance of all four dimensions of engagement strategies.

Instructor engagement was identified in this study by various strategies to be used by online course instructors such as sending or posting regular email reminders or announcements, and creating a common space for students to contact the instructor (Bolliger & Martin, 2021). Our findings are consistent with the previous literature suggesting the importance of instructor being available and responsive to students and having regular and open communication with students for online student success (Gaytan & McEwen, 2007; Watson et al., 2017). Our findings are also consistent with Martin and Bolliger (2018) and Bolliger and Martin (2021) who similarly found the instructors' sending regular emails or announcements being rated among the most important engagement strategies for instructor engagement. Our finding about the perceived importance of instructor's posting rubrics for all graded assignments is in line with the previous literature suggesting that well-defined and well-organized rubrics are considered by students to be an integral component of effective online assessments (Gaytan & McEwen, 2007; Watson et al., 2017) and that assessment rubrics are effective tools that can be used to ensure objective online assessment (Hsiao et al., 2014; Wang, 2015). Our finding regarding the high rating of grading rubrics is also consistent with Bolliger and Martin's (2021) findings. Posting a due date checklist was another instructor engagement strategy perceived very important, which is also consistent with the previous literature indicating that clear course design and organization is highly expected and appreciated by online students (Watson et al., 2017). This finding is valuable in the context of previous literature, suggesting that clearly communicating important due dates as part of online teaching presence helps achieve desirable outcomes, such as basic psychological needs satisfaction (Author et al., 2022) and perceived learning and student satisfaction in online learning environments (Caskurlu et al., 2020). Referring to students by name in online discussions, structuring online discussions with questions and/or prompts, and providing course orientation for students were also perceived important in this category.

This pattern of quantitative findings was further supported by the qualitative results indicating the importance of engagement with the instructor via synchronous and asynchronous interactions. For example, the participants found instructor engagement through being accessible and available to students essential for their own engagement. In our view, the most compelling explanation for the perceived importance of genuine instructor feedback is that students may feel that their work and performance are not being acknowledged by their instructors in the absence of genuine feedback, thereby diminishing their sense of connection and engagement with their course instructor. This idea is supported by the previous literature indicating that prompt, substantive, and meaningful feedback provided by course instructors is highly expected, strongly needed, and appreciated by students (Watson et al., 2017). Feedback enables online students to

have a stronger sense of community, which needs to be developed so that students are engaged in online learning environments (Li et al., 2020). Taken together, our findings indicate that instructor engagement needs to be perceived and experienced and is strongly expected by students taking online courses in higher education settings.

Self-directed engagement was identified in this study by various strategies such as students having the opportunity to search for and select materials based on their interests and to work on realistic scenarios or cases to apply course content to real-world situations or problems (Bolliger & Martin, 2021). Having the opportunity to research a topic of their interest and to work on realistic scenarios/cases to apply the course content were perceived highly important in this category. Applying course content to real-world scenarios is particularly relevant and valuable in the context of online learning because such real-world applications of course knowledge are important to achieve high-order learning outcomes including cognitive presence, problem solving, and critical thinking (Sadaf et al., 2021).

Our findings indicating students' self-directed online learning experiences characterized by choice and self-interest are directly relevant to promoting autonomy as the core psychological need necessary for high-quality motivation and engagement (Ryan & Deci, 2017). Promoting autonomy via such self-directed engagement strategies as perceived and experienced by students is particularly relevant and valuable in the context of online learning in which autonomy "is an important construct of motivation in self-regulated, online learning environments" (Lee et al., 2015, p. 55). The overall pattern of findings indicating the high perceived importance of all self-directed engagement strategies is also valuable in light of previous research demonstrating the positive relationships between autonomy or internal locus of control and desirable learning outcomes including student satisfaction and persistence in online learning environments (Joo et al., 2013). Given the particular importance of autonomy and self-direction in online learning environments (Lee et al., 2015), our findings strongly suggest that online course instructors should create and support such self-directed engagement opportunities for their students. Taken together, our findings indicate that self-directed engagement strategies promoting and supporting students' self-direction and autonomy are highly valued and strongly expected by the students taking online courses.

Multimodal engagement was identified in this study by various strategies such as students experiencing synchronous web conferences and instructors using various features of synchronous communication for interactions with students (Bolliger & Martin, 2021). Instructors using different forms of synchronous communication to interact with their students (e.g., polls, whiteboard, chat box), creating short videos for better instructor presence, and using digital tools to provide audio and/or video feedback in addition to text were all perceived highly important and necessary in this category. Students experiencing synchronous web conferences, interacting with course content in different formats (e.g., text, video, audio, simulations), and posting audio and/or video files in discussion threads instead of text only were less important to the participants in this study.

Our findings indicating the high ratings of online course instructors using digital tools and technologies to consolidate their presence and improve their interaction and engagement with the students are consistent with previous research suggesting that online students expect and

value different forms of synchronous communication and interaction with the course instructor and the instructors' use of technological tools (Watson et al., 2017). These findings are also directly relevant and valuable in the context of online learning literature, suggesting that emerging technologies and tools can help improve online interactions and contribute to a sense of community (Borup et al., 2012; Thomas et al., 2017).

One particularly interesting finding was that students posting audio and/or video files in discussion threads instead of text only was rated the lowest by the students in this study, which is actually consistent with the existing research evidence indicating such negative student experiences with audio and video discussion responses as distress, time, and technology issues (Denson & Shurts, 2021). This definitely needs further investigation given that there is very limited research about online students' expectations regarding this engagement strategy.

As for our findings regarding the participants' experiences with their online course instructors' use of different technologies for different purposes, the participants' responses were more consistent with the high quantitative ratings of instructor-related multimodal engagement strategies. One particularly interesting qualitative finding was that the instructors' multimodal engagement choices and expectations seemed to influence the students' multimodal engagement. Some instructors might not be as willing and encouraging as others in terms of the students' use of digital tools and technologies. This is another area to be further explored in terms of this potential reciprocal relationship between instructors' multimodal engagement and students' multimodal engagement.

Peer engagement was the least expected engagement strategy and identified in this study by various strategies such as students introducing themselves to their peers using icebreaker activities and working collaboratively using online communication tools to complete assignments (Bolliger & Martin, 2021). Having opportunities to reflect on the course content together with peers was the most expected strategy for peer engagement, followed by students introducing themselves to peers using icebreaker activities. Asynchronous online discussions designed and implemented in line with the principles of collaborative reflection, shared group cognition, and community of inquiry are common online spaces where students experience peer engagement through discussing and thinking about the course content with their peers and co-constructing knowledge (Garrison et al., 2000, 2001; Zydney et al., 2012). This finding is particularly important and valuable emphasizing positive outcomes of online collaborative reflections and communities of inquiry such as higher-order thinking and cognitive presence in social-constructivist online learning environments (Sadaf & Olesova, 2017).

Our finding regarding the high expectations of students introducing themselves to peers using icebreaker activities is also important given that icebreaking activities can help online students get to know each other (Bolliger & Martin, 2021), which in turn gives online students a sense of belonging through their sense of social presence (Richardson et al., 2017). The other engagement strategies not so strongly expected were facilitating online discussions together with peers, working collaboratively using online communication tools to complete assignments, and interacting with peers through student presentations. This pattern of findings is consistent with prior literature indicating that although peer moderation or facilitation of online discussions can support higher-order thinking, cognitive engagement, sense of community, and meaningful

interactions in online discussions (Seo, 2007; Xie & Ke, 2011), students need to feel motivated, especially intrinsically motivated, to more actively participate in online discussions (Xie et al., 2006). This finding may be explained by the idea that the students were not intrinsically motivated enough to perceive this strategy to be important for peer engagement. Our finding indicating fewer expectations about collaborative work online may be explained by the idea that some students simply may not prefer or like collaboration online (Martin & Bolliger, 2018). Another interpretation is that online collaboration can be challenging due to problems associated with time management and planning of shared work (Hadwin et al., 2018).

Our findings regarding students' reviewing and rating each other's work and performance are consistent with the previous literature that some students may not take their peers' comments or evaluative feedback as valid or trustworthy and students might be too lenient and so misleading in their overly positive comments about their peers' work (Ertmer et al., 2010). The participants in this study might have had negative experiences and might have accordingly rated these two items lower. Such negative experiences were actually implied by one of the interviewed participants indicating that the amount of peer evaluation work that the students were expected to do was important to their motivation to evaluate their peers. The repetitive nature of online discussions could also be a challenge or limitation to their ability to promote peer engagement despite the overall importance of online discussions for peer interactions. Our findings also suggested that the quality of peer engagement through online interactions including online discussions could also be influenced by instructors' teaching styles, nature of course content, and peers' attitudes towards such interactions. Taken together, our findings indicate that peer engagement strategies might need to be promoted and supported intentionally by course instructors so that the students can see the relevance, importance, and value of such engagement strategies to their high-quality online learning experiences. This could be achieved through systematic and strategic manifestations of teaching presence in the form of both design and organization through clear course goals, learning objectives, and clear instructions and facilitation through providing guidance and intellectual support when needed in online learning environments (Anderson et al., 2001; Caskurlu et al., 2020; Author et al., 2021).

**Implications**
This study has shown that students taking online courses as part of their higher education consider all four dimensions of engagement strategies (i.e., instructor, peer, self-directed, and multimodal engagement) important and necessary, although instructor engagement was the most expected engagement strategy in this study. We offer some implications for researchers, practitioners, and other stakeholders for whom student engagement in online courses is an important issue to take into serious consideration for high-quality online learning experiences (Kucuk & Richardson, 2019; Robinson & Hullinger, 2008). This study adds to the literature that these four engagement dimensions based on Moore's (1989) three types of interaction proposed and validated by Bolliger and Martin (2021) are empirically important facets of online student engagement in terms of strategies perceived to be necessary and expected by students.

The findings from this study offer several different strategies for online course instructors to improve their students' engagement from diverse perspectives. These engagement strategies also provide insights for instructional designers of online courses. It is noteworthy that instructor engagement strategies were found to be the most expected engagement strategies, which should

indicate the vital role of course instructors in engaging and involving their students in the online learning process (Martin & Bolliger, 2018). The second highly expected strategies of self-directed engagement should also indicate to the online course instructors that autonomy through having choices and opportunities to self-endorse their learning experiences is an important psychological need to be satisfied (Turk et al., 2022). Instructors should also seek innovative ways to promote and maintain their students' multimodal engagement to enrich their interactions with the course content. In addition, instructors should diversify their instructional strategies to promote high levels of peer engagement in their online courses. This study also has an important methodological implication to the field of online education. To the best of our knowledge, this study is one of the exemplar studies that used a joint display as an integration strategy in the empirical mixed methods literature of online education.

**Limitations and Future Research**

Despite the significant findings of this mixed methods study, this study still has its limitations. First, the sample size of the quantitative portion of the study was relatively small. However, the sample was drawn from two different R1 institutions in the United States to represent varying perspectives and different online course contexts. Second, engagement strategies measured and explored in this study were based on four dimensions developed by Bolliger and Martin (2021), but these strategies are not intended to represent an exhaustive list of all possible engagement strategies in the context of online learning. It should still be noted, though, that all the engagement strategies used in this study are in alignment with Moore's (1989) well-established interaction framework. Third, we did not control for any course-specific variations such as instructor's teaching style, course content, or other contextual factors that might have influenced the participants' higher and lower expectations and positive or negative experiences of the engagement strategies. Therefore, the findings should be interpreted with caution due to the relatively limited generalizability across different online contexts and settings. In fact, we aimed to overcome this limitation through the use of mixed methods research in the study design. Future researchers should consider examining other possible engagement strategies not included in this study. Future studies should also consider collecting quantitative data from a larger sample for better representativeness and generalizability of the findings. Contextual factors including instructor's teaching style, online delivery mode, course content and discipline, and demographic variables should also be studied by future research.

**Conclusion**

Our integrated findings confirmed the importance and necessity of the engagement strategies at varying degrees across four dimensions: instructor, self-directed, multimodal, and peer engagement. Based on these findings, online course instructors and instructional designers should aim to design, develop, and implement engaging online courses. The course instructor as the facilitator and the course design itself may need to provide opportunities for students to effectively engage with the learning content, instructor, and peers using their own volition and choice opportunities and multiple means of online communication.

**Availability of data and material**

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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**Declarations**

**Competing interests**

The authors declare that they have no competing interests.

<center>**References**</center>

Anderson, T., Rourke, L., Garrison, D. R., & Archer, W. (2001). Assessing teaching presence in a computer conferencing context. *Journal of Asynchronous Learning Networks*, *5*(2), 1–17.

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the student engagement instrument. *Journal of School Psychology*, *44*(5), 427–445. https://doi.org/10.1016/j.jsp.2006.04.002

Bolliger, D. U., & Martin, F. (2018). Instructor and student perceptions of online student engagement strategies. *Distance Education*, *39*(4), 568–583. https://doi.org/10.1080/01587919.2018.1520041

Bolliger, D. U., & Martin, F. (2021). Factors underlying the perceived importance of online student engagement strategies. *Journal of Applied Research in Higher Education*, *13*(2), 404–419. https://doi.org/10.1108/JARHE-02-2020-0045

Borup, J., West, R. E., & Graham, C. R. (2012). Improving online social presence through asynchronous video. *Internet and Higher Education*, *15*(3), 195–203. https://doi.org/10.1016/j.iheduc.2011.11.001

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Bryman, A. (2008). Why do researchers integrate/combine/mesh/blend/mix/merge/fuse quantitative and qualitative research? In M. M. Bergman (Ed.), *Advances in mixed methods research* (pp. 87–100). Sage.

Caskurlu, S., Maeda, Y., Richardson, J. C., & Lv, J. (2020). A meta-analysis addressing the relationship between teaching presence and students' satisfaction and learning. *Computers & Education*, *157*, 1–16. https://doi.org/10.1016/j.compedu.2020.103966

Chen, P.-S. D., Lambert, A. D., & Guidry, K. R. (2010). Engaging online learners: The impact of web-based learning technology on college student engagement. *Computers & Education*, *54*(4), 1222–1232. https://doi.org/10.1016/j.compedu.2009.11.008

Denson, V. L., & Shurts, L. M. (2021). RN to BSN students' experiences with asynchronous audio-video discussion responses. *Nursing Education Perspectives*, *42*(4), 238–240. https://doi.org/10.1097/01.NEP.0000000000000671

Dixson, M. D. (2010). Creating effective student engagement in online courses: What do students find engaging? *Journal of the Scholarship of Teaching and Learning*, *10*(2), 1–13. https://www.learntechlib.org/p/54817/

Dixson, M. D. (2015). Measuring student engagement in the online course: The Online Student Engagement scale (OSE). *Online Learning*, *19*(4), 1–15. https://doi.org/10.24059/olj.v19i4.561

Ertmer, P. A., Richardson, J. C., Lehman, J. D., Newby, T. J., Xi Cheng, Mong, C., & Sadaf, A. (2010). Peer feedback in a large undergraduate blended course: Perceptions of value and learning. *Journal of Educational Computing Research*, *43*(1), 67–88. https://doi.org/10.2190/EC.43.1.e

Fredricks, J. A. (2011). Engagement in school and out-of-school contexts: A multidimensional view of engagement. *Theory into Practice, 50*(4), 327–335. https://doi.org/10.1080/00405841.2011.607401

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, *74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs – principles and practices. *Health Services Research, 48*(6), 2134-2156. https://doi.org/10.1111/1475-6773.12117

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, *74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, *2*(2), 87–105. https://doi.org/10.1016/S1096-7516(00)00016-6

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education*, *15*(1), 7–23. https://doi.org/10.1080/08923640109527071

Gaytan, J., & McEwen, B. C. (2007). Effective online instructional and assessment strategies. *American Journal of Distance Education*, *21*(3), 117–132. https://doi.org/10.1080/08923640701341653

Hadwin, A. F., Bakhtiar, A., & Miller, M. (2018). Challenges in online collaboration: Effects of scripting shared task perceptions. *International Journal of Computer-Supported Collaborative Learning*, *13*(3), 301–329. https://doi.org/10.1007/s11412-018-9279-9

Henrie, C. R., Halverson, L. R., & Graham, C. R. (2015). Measuring student engagement in technology-mediated learning: A review. *Computers & Education*, *90*, 36–53. https://doi.org/10.1016/j.compedu.2015.09.005

Hsiao, W.-Y., Chen, M., & Hu, H.-W. (2014). Assessing online discussions: Adoption of critical thinking as a grading criterion. *International Journal of Technology, Knowledge & Society: Annual Review*, *9*(3), 15–25. https://doi.org/10.18848/1832-3669/CGP/v09i03/56370

Hsu, H.-C. K., Wang, C. V., & Levesque-Bristol, C. (2019). Reexamining the impact of self-determination theory on learning outcomes in the online learning environment. *Education and Information Technologies*, *24*(3), 2159–2174. https://doi.org/10.1007/s10639-019-09863-w

Huang, C., Wu, X., Wang, X., He, T., Jiang, F., & Yu, J. (2021). Exploring the relationships between achievement goals, community identification and online collaborative reflection. *Educational Technology & Society*, *24*(3), 210–223. https://www.jstor.org/stable/27032866

Kucuk, S., & Richardson, J. C. (2019). A structural equation model of predictors of online learners' engagement and satisfaction. *Online Learning*, *23*(2), 196–216. https://doi.org/10.24059/olj.v23i2.1455

Lee, E., Pate, J. A., & Cozart, D. (2015). Autonomy support for online students. *TechTrends: Linking Research and Practice to Improve Learning*, *59*(4), 54–61. https://doi.org/10.1007/s11528-015-0871-9

Li, J., Wong, S. C., Yang, X., & Bell, A. (2020). Using feedback to promote student participation in online learning programs: Evidence from a quasi-experimental study. *Educational Technology Research and Development*, *68*(1), 485–510. https://doi.org/10.1007/s11423-019-09709-9

Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning*, *22*(1), 205–222. https://doi.org/10.24059/olj.v22i1.1092

Martin, F., Bolliger, D. U., & Flowers, C. (2021). Design matters: Development and validation of the Online Course Design Elements (OCDE) instrument. *The International Review of Research in Open and Distributed Learning*, *22*(2), 46–71. https://doi.org/10.19173/irrodl.v22i2.5187

Martin, F., & Borup, J. (2022). Online learner engagement: Conceptual definitions, research themes, and supportive practices. *Educational Psychologist*, 1–16. https://doi.org/10.1080/00461520.2022.2089147

Martin, F., Sun, T., & Westine, C. D. (2020). A systematic review of research on online teaching and learning from 2009 to 2018. *Computers & Education*, *159*, 1–17. https://doi.org/10.1016/j.compedu.2020.104009

Moore, M. G. (1989). Editorial: Three types of interaction. *American Journal of Distance Education*, *3*(2), 1–7. https://doi.org/10.1080/08923648909526659

Morse, J. M. (2003). Principles of mixed methods and multi-method research design. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 189-208). Sage.

Picciano, A. G. (2019). *Online education: Foundations, planning, and pedagogy*. Routledge.

Rashid, T., & Asghar, H. M. (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior*, *63*, 604–612. https://doi.org/10.1016/j.chb.2016.05.084.

Redmond, P., Heffernan, A., Abawi, L., Brown, A., & Henderson, R. (2018). An online engagement framework for higher education. *Online Learning, 22*(1), 183–204. https://doi.org/10.24059/olj.v22i1.1175

Richardson, J. C., Maeda, Y., Lv, J., & Caskurlu, S. (2017). Social presence in relation to students' satisfaction and learning in the online environment: A meta-analysis. *Computers in Human Behavior*, *71*, 402–417. https://doi.org/10.1016/j.chb.2017.02.001

Robinson, C. C., & Hullinger, H. (2008). New benchmarks in higher education: Student engagement in online learning. *Journal of Education for Business*, *84*(2), 101–109.

Sadaf, A., Kim, S. Y., & Wang, Y. (2021). A comparison of cognitive presence, learning, satisfaction, and academic performance in case-based and non-case-based online discussions. *American Journal of Distance Education*, 1–14. https://doi.org/10.1080/08923647.2021.1888667

Sadaf, A., & Olesova, L. (2017). Enhancing cognitive presence in online case discussions with questions based on the Practical Inquiry Model. *American Journal of Distance Education*, *31*(1), 56–69. https://doi.org/10.1080/08923647.2017.1267525

Seaman, J. E., Allen, I. E., & Seaman, J. (2018). *Grade increase: Tracking distance education in the United States* (pp. 1–45). Babson Survey Research Group. https://onlinelearningsurvey.com/reports/gradeincrease.pdf

Seo, K. K. (2007). Utilizing peer moderating in online discussions: Addressing the controversy between teacher moderation and nonmoderation. *American Journal of Distance Education*, *21*(1), 21–36. https://doi.org/10.1080/08923640701298688

Sinatra, G. M., Heddy, B. C., & Lombardi, D. (2015). The challenges of defining and measuring student engagement in science. *Educational Psychologist, 50*(1), 1–13. https://doi.org/10.1080/00461520.2014.1002924

Teddlie, C., & Yu, F. (2007). Mixed methods sampling: A typology with examples. *Journal of Mixed Methods Research, 1*(1), 77-100. https://doi.org/10.1177/2345678906292430

Thomas, R. A., West, R. E., & Borup, J. (2017). An analysis of instructor social presence in online text and asynchronous video feedback comments. *The Internet and Higher Education*, *33*, 61–73. https://doi.org/10.1016/j.iheduc.2017.01.003

Turk, M., Heddy, B. C., & Danielson, R. W. (2022). Teaching and social presences supporting basic needs satisfaction in online learning environments: How can presences and basic needs happily meet online? *Computers & Education*, *180*, 104432. https://doi.org/10.1016/j.compedu.2022.104432

VERBI Software. (2019). MAXQDA 2020 [computer software]. Berlin, Germany: VERBI Software. Available from maxqda.com.

Wang, P. A. (2015). Assessment of asynchronous online discussions for a constructive online learning community. *International Journal of Information and Education Technology*, *5*(8), 598–604. https://doi.org/10.7763/IJIET.2015.V5.575

Watson, F., Castano Bishop, M., & Ferdinand-James, D. (2017). Instructional strategies to help online students learn: Feedback from online students. *TechTrends: Linking Research & Practice to Improve Learning*, *61*(5), 420–427. https://doi.org/10.1007/s11528-017-0216-y

Xie, K., Debacker, T. K., & Ferguson, C. (2006). Extending the traditional classroom through online discussion: The role of student motivation. *Journal of Educational Computing Research*, *34*(1), 67–89.

Xie, K., & Ke, F. (2011). The role of students' motivation in peer-moderated asynchronous online discussions. *British Journal of Educational Technology*, *42*(6), 916–930. https://doi.org/10.1111/j.1467-8535.2010.01140.x

Zydney, J. M., deNoyelles, A., & Kyeong-Ju Seo, K. (2012). Creating a community of inquiry in online environments: An exploratory study on the effect of a protocol on interactions within asynchronous discussions. *Computers & Education*, *58*(1), 77–87. https://doi.org/10.1016/j.compedu.2011.07.009