

The Level of Student Engagement in Online Courses during the COVID-19 Pandemic at the ILT Department

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ABSTRACT

This study aimed to investigate the level of student engagement in online courses in the Instructional and Learning Technologies Department (ILT) at the Sluat Sultan Qaboos University (SQU) during the COVID-19 pandemic. The study also explored the challenges that impeded student engagement in online courses. The study followed a descriptive design using a purposive sample of 111 students and five instructors. Mixed methods were used for gathering the data of the study. The level of student engagement was measured through the survey of student engagement and the analysis of Moodle reports. Moreover, semi-structured interviews were conducted with six students and five instructors to investigate the challenges that hindered student engagement. Although, the study revealed some challenges that impeded student engagement in online courses such as, heavy workload on students, students' inability to manage their study time, low-level of class participation, and increase of instructors' burdens, the findings of the study indicated that the ILT students still showed a high level of engagement. Thus, the revealed challenges would help educators to plan for better strategies for student engagement. The study presents some recommendations and avenues for further research.

Keywords: *Online learning; student engagement; emotional engagement; cognitive engagement; behavioural engagement; challenges of student engagement*

INTRODUCTION

The pandemic induced many institutions around the world to shift their instructions online, including SQU, which started emergency online learning in the spring semester of 2020. This rapid transition has encountered many obstacles. One of these obstacles was the issue of increasing and maintaining student engagement in the learning process. Instructors in higher educational institutions must find new techniques and strategies to engage their students in the online environment in this rapid transition. Student engagement can play a central role in the learning process, as Lei et al., (2018) noted, student engagement positively correlated with students' academic achievements. Therefore, engaging students in online learning is important to ensure students' success in their learning. Furthermore, measuring the level of student engagement can reveal the effectiveness of online learning (Hu & Li, 2017). The literature highlights three main dimensions of student engagement (Hu & Li, 2017; Subramainan & Mahmoud, 2020). The first one is behavioral engagement, defined as students' observable behaviors, such as their class participation or the time s/he spends in an online activity. The second dimension is emotional engagement, defined as the learners' feelings toward learning. Finally, the third dimension is cognitive engagement, which refers to the learners' thoughts, mental efforts, and knowledge acquisition. Traditional and online learning environments have the same engagement dimension, but the factors and indicators vary. Therefore, using the appropriate tools to measure student engagement in online environments can lead to authentic results. Thus, this study examined the

level of student engagement in online courses during the COVID-19 pandemic at the department of ILT, using quantitative and qualitative methods.

The rapid transformation of e-learning during the coronavirus pandemic period has raised many issues for research. According to Osman (2020), the College of Education took 17 years to reach 40% of offerings in online courses using the Moodle LMS platform. Most courses are offered in a blended format. However, it took one week to deliver all the courses online during the pandemic. These statistics clearly show that one week is a forced and rapid transition, which could be accompanied by many challenges that need further investigation. Additionally, measuring the level of student engagement can provide critical indicators to evaluate and improve the learning experience. According to Kuh (2009, p. 9), “student engagement data are process indicators, or proxies, for learning outcomes.” Moreover, according to Hu & Li (2017), there are some gaps in the literature on student engagement when applying online learning. Most researchers have studied student engagement as a whole and not from different dimensions.

Student engagement

Many studies have examined student engagement (Beck & Roosa, 2020; Günüş & Kuzu, 2014; Hu & Li, 2017; Lee et al., 2019; Kuh, 2009; Subramainan & Mahmoud, 2020; Teoh et al., 2013; Wang et al., 2016). The concept is constantly evolving and is getting more consideration among researchers. According to Subramainan & Mahmoud (2020), student engagement has received more attention recently from researchers. Student engagement is defined as the “quality of effort and involvement in productive learning activities” (Kuh, 2009, p. 6). Kearsley & Shneiderman (1998) stated that the basic principles for engaged learning mean that the educational process includes instructional activities such as problem solving. Thus, there is an educational environment with purposeful activities, leading to a highly motivated learner.

Furthermore, Velden (2013, p. 78) defined student engagement as “the degree at which students engage with their studies in terms of motivation, the depth of their intellectual perception or simply studiousness” within the community of academics. Additionally, he committed that engaged students are self-regulated and self-directed learners who cooperate with the institution to succeed in their learning. Moreover, student engagement differs in duration and intensity; for example, a student may feel engaged in one course but not in the courses. A student may also feel bored in one semester and feel engaged in the following semester (Martin & Torres, 2016). From the definitions, it is obvious that student engagement is a multi-dimensional concept related to student motivation, student intellectual perception and student behavior. Subramainan & Mahmoud (2020) stated that “a broad agreement in the literature that student engagement is a multi-dimensional construct in either the subject domain or level domain; the most prevalent dimensions are behavioral, emotional, and cognitive engagement” (p. 107) in their systematic review of 87 papers on students’ engagement. Therefore, there are three main dimensions of student engagement, as shown in Figure 1 below.

Behavioral engagement is evident and observable and can be measured from the student behavior in the learning process. Cognitive engagement mainly refers to learning strategies that increase students’ understanding, learning control, and student mental effort in learning. Emotional engagement mainly refers to students’ emotions and reactions, like interest, boredom, happiness, sadness, anxiety, and a sense of belonging to the learning (Hu & Li, 2017). A new dimension of engagement has caught researchers’ attention in recent years: social engagement. The term social engagement refers to the social interactions with peers and instructors and the willingness to invest in building relationships with the learning community (Wang et al., 2016). Although many researchers have studied student engagement in general, cognitive and behavioral dimensions have received more attention from researchers. Less consideration of social engagement by the researchers is attributed to its interrelation with the other dimensions. It is important to measure

student engagement from its main dimensions because students might show high behavioral engagement while their emotional and cognitive engagement is low. However, when students have a high cognitive and emotional engagement, their behavioral engagement could be high (Hu & Li, 2017).

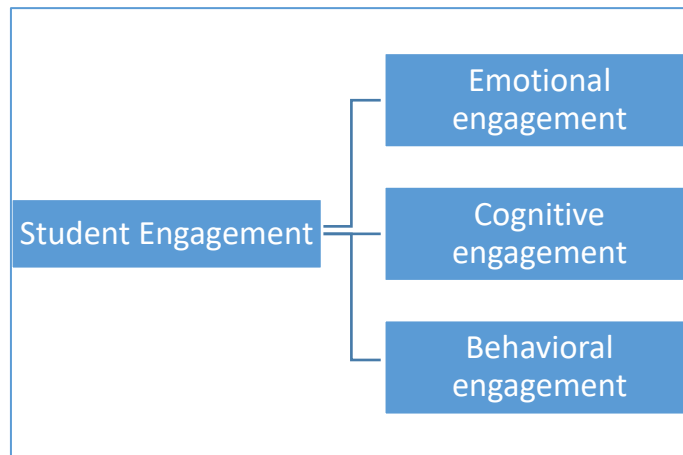


Figure 1: Student Engagement Dimensions

Moreover, the student engagement dimensions are interrelated, and the literature proves a strong relationship between the three main dimensions of student engagement. For example, Hu & Li (2017) concluded that there is a strong relationship between the three main dimensions of student engagement. For example, emotional engagement is essential to a student's motivation toward learning and directly impacts the other engagement dimensions. Likewise, students' positive emotions could stimulate effective strategies to complete the learning tasks and use them in new situations. Moreover, the level of engagement should be measured from all dimensions to assure that students are fully engaged, as "when students actively participate in learning from three dimensions, their engagement is fully effective" (Hu & Li, 2017, p. 3). Therefore, the current study measured student engagement from the three main dimensions: emotional engagement, behavioral engagement and cognitive engagement.

Although several studies have examined student engagement in online learning environments, student online behavioural engagement was the dimension most used by researchers to measure student engagement in online learning environments. Most of these studies depended on behavioral indicators to measure the level of student engagement (Lee et al., 2019). For example, a study conducted by Nagi & Suesawaluk (2008) to evaluate students' interaction in online courses showed that Moodle LMS reports could be used to evaluate student interaction in the course (Nagi & Suesawaluk, 2008). In addition, Dixson (2015) examined the correlation between the observation of learning behaviours and the application of learning behaviours in an online course with the findings of a student engagement survey. The study's findings concluded that the application of learning behaviours in the LMS positively correlated with the student scores in the survey.

Günüç & Kuzu (2014) examined the role of technology in student engagement in higher education, and they found that technology contributed to student engagement in online learning environments. Social applications like Facebook, Twitter, and Wiki could increase social engagement among students if teachers play a good role in maintaining effective interactions with students (Günüç & Kuzu, 2014). Apart from this, according to Lee et al. (2019), the important indicators of the engaged student in online learning are when a learner is active, motivated to learn, self-directed, manages

his own learning, uses prior knowledge, uses online technologies effectively, and communicates well with peers and instructors.

Alawamleh, Al-Twait, & (2020) conducted a quantitative research study through a semi-structured online survey to explore whether online learning has an effect on communication between instructors and students in a negative way, whether online learning affects students' productivity levels, and to evaluate and suggest ways of improving effective online communication between instructors and students. Their findings showed a decrease in the level of communication between students and their instructors in online learning during the COVID-19 pandemic. Their results also showed that students still prefer the traditional classroom over online classes due to many problems they face when taking online classes, such as lack of motivation, understanding of the material, decrease in communication levels between the students and their instructors and their feeling of isolation caused by online classes. In addition, Salta, Paschalidou, Tsetseri, & Koulougliotis (2021) compared student engagement in face-to-face learning environments and online learning environments during the COVID-19 pandemic and found that emotional engagement in online learning was low.

Student engagement challenges

The literature has proven the importance of students' engagement in learning. However, it shows many challenges to increasing student engagement in online learning environments. For instance, Lei et al., (2018) conducted a meta-analysis of 69 studies to investigate the scholar's arguments about the relationship between student engagement and student achievement. The findings showed that the correlation between overall student engagement and academic achievement was positive and moderately strong. The main dimensions of student engagement - emotional, behavioral and cognitive - positively correlated with students' academic achievements.

However, some challenges can affect student engagement. Another systematic review of the literature showed that students' low motivation, lack of personal autonomy, inability to manage time, study workloads, low class participation and low interaction between students and instructors are direct factors leading to student disengagement (Subramainan & Mahmoud, 2020). Some of these challenges can become more challenging in the online learning environment because of the physical distance. Hill & Fitzgerald (2020) stated that the low student engagement in online learning was challenging due to the difficulty of building strong relationships among learners or between the learners and their instructors in online environments. Such a challenge could affect students' emotional engagement and decrease the students' sense of belonging in the learning environment. Another critical challenge is the low level of student participation in online learning. Kebritchi et al., (2017), in their literature review of the challenges in online learning, stated that the learners' participation and engagement in online environments were considered a major challenge. Students' expectations are another challenge. For example, some students may have high expectations, like expecting instantaneous feedback on their work (Kebritchi et al., 2017). Thus, instructors could face challenges in meeting these expectations. When instructors cannot meet them, this might affect the relationship between instructors and their students, a critical factor in increasing student engagement. Additionally, communication barriers are considered another challenge in online learning (Kebritchi et al., 2017). A communication barrier between the instructors and students could affect student engagement.

Policymakers and instructional designers may benefit from the findings of this study. They may recognize some critical indicators that show them how to design online learning environments for a better learning experience. Consequently, this study seeks to answer the following questions:

1. To what extent were the students engaged in online courses at the ILT Department during the COVID-19 pandemic?

2. What challenges affected students' engagement in online courses in the ILT Department during the COVID-19 pandemic.

METHODOLOGY

This study used a quantitative-qualitative design. A questionnaire, interviews and Moodle LMS reports were used to collect the relevant data.

The purpose of the study

The purpose of this study was to investigate the level of students' engagement in online courses in the Instructional and Learning Technologies Department (ILT) at SQU during the COVID-19 pandemic. It also explored the challenges that impeded student engagement in online courses.

Significance of the study

This study examined the challenges that affected students' engagement in online learning during the COVID-19 pandemic. The findings of this study may provide valuable data that might help policy makers at Higher Educational institutions design engaging online courses. This study also may serve as the starting point for other experimental studies concerned with designing engaging online courses in higher education.

Study Sample

The sample for this study consisted of 111 students who registered in five major courses in the ILT Department. The researchers used the purposive research sample method to select the sample. Table 1 below shows the courses and the total number of students who participated in each course.

Table 1: The study sample (the courses and the total number of students in each course)

Course	Number of students
Course 1	26
Course 2	26
Course 3	22
Course 4	9
Course 5	28
Total	111

In addition, five instructors and six students were chosen to participate in the interview for this study.

The tools of the study

The data collection was conducted using three tools: a survey instrument measuring student engagement, semi-structured interviews, and Moodle LMS reports to collect the relevant data.

Survey

The researchers adopted an existing survey instrument designed by Lee et al., (2019) to measure student engagement in online courses. The instrument was designed based on the literature and was reviewed by seven educational technology experts and educational psychology specialists. The instrument consisted of 24 statements and three sections. Each section represented one of the engagement dimensions: emotional engagement, cognitive engagement, and behavioral

engagement. Cronbach's alpha was used to measure the reliability of the survey instrument, and it was found to be 0.94. For interpreting the participants' scores in the survey, the researchers adopted five categories using the well-known method for determining the intervals of a 5-point Likert scale. The intervals were calculated using the formula $(5-1) / 5 = 0.80$ to determine the interval width. The intervals were calculated using the work of Pimentel (2019), whose paper added some clarifications in Likert Scaling usage. 70 participants were surveyed in this study.

Moodle LMS report

The second instrument was the LMS reports. The Moodle system generated statistical reports used to measure the students' engagement in the online courses. Two variables were determined to measure the online behaviors of student engagement: students' views and students' posts.

Interviews

This study aimed to obtain the maximum depth of investigation. Therefore, it depended on qualitative data using interviews. The data obtained from the interviews were to answer the second research question, and to support the results from the quantitative data of the first research question.

Instructor's interviews: Five semi-structured interviews were conducted with five instructors. They were conducted face to face, and the length was between 30 minutes and 50 minutes. Consent was obtained from the participants to record the interviews. The interviews consisted of two sections. The first section of the interview had three questions and was used to answer the first research question in this study. The second section of the interview was used as the main tool to answer the second research question in this study. The questions of the second section varied between questions about predetermined challenges based on the relevant literature and open questions to investigate new challenges faced by the instructors.

Students' interviews: Six semi-structured interviews were conducted with students. They were conducted via a phone call, and the length was between 15 minutes and 30 minutes. The names of participants were presented in codes to protect their anonymity. The students' interviews questions were all about predetermined challenges based on the relevant literature and the student's responses in the open-ended survey question.

Research procedures

The researcher went through the following main procedures to conduct the study and administer the research instruments.

- Coordination with the course instructors to obtain initial approval to use their courses in the research sample. These courses were major courses in the department, and online teaching methods were used across those courses.
- Obtaining SQU approval to implement the research in the ILT Department.
- Obtaining the final approval from the instructors to add the researcher to the courses as a non-editing teacher.
- Implementing the research instruments from the beginning of week 10 to the end of week 12.
- In Week 11 of the semester, weekly reports were extracted from the five online courses for nine weeks (week 2 to week 10).

Definition of Key Terms

Student engagement is defined as the "quality of effort and involvement in productive learning activities" (Kuh, 2009, p. 6). In this study, student engagement was referred to as student

involvement in the online courses emotionally, cognitively and behaviorally. The survey helped measure student engagement, and the statistical reports were generated automatically by the Moodle system in the course learning management system.

Online Behavioural Engagement refers to students' behaviours in the online learning environment, which are documented regularly by the learning management system (Anderson, 2017). In this study, Online Behavioural Engagement referred to the frequencies of the students' posts and views on the online learning activities extracted from the LMS and generated automatically by the Moodle system.

RESULTS

To what extent were the students engaged in online courses at the ILT Department during the COVID-19 pandemic?

To answer this question, the researchers calculated the means and standard deviations regarding the level of students' engagement in online courses at the ILT Department. A survey and interview were used to collect this data from the research participants.

Analysis of the student engagement survey

An analysis of participants' level of engagement was conducted for the overall student engagement level and the three dimensions of engagement: emotional engagement, cognitive engagement, and behavioural engagement. Table 2 presents the means and standard deviations of the overall student engagement and the three dimensions.

Table 2: Means and standard deviations of the overall level of engagement

Variable	N	M	SD	Level
Emotional Engagement	70	3.42	0.86	High level
Cognitive Engagement	70	3.60	0.66	High level
Behavioural Engagement	70	3.66	0.58	High level
Overall Engagement	70	3.55	0.60	High level

As shown in Table 2, the participants demonstrated a high engagement level with an overall mean score ($M = 3.55$). Moreover, the participants demonstrated a high level of engagement across all three dimensions. It is clear from the data in Table 2 that the behavioral engagement dimension with a total mean score of 3.66, demonstrated the participants the highest level of engagement.

In Table 3 below, the mean scores, standard deviations and engagement level for each statement in each dimension are shown.

As indicated in Table 3, the mean scores for the individual statements ranged from $M = 2.97$ to $M = 4.27$, with an overall mean score of $M = 3.55$. The top four statements were as follows:

- Statement# 22 – “I try removing all distracting environmental factors when taking online classes” with a mean score of $M = 4.27$ in the behavioral dimension.
- Statement #11 – tries solving difficult problems with other students when I encounter them” with a mean score of $M = 3.94$ in the cognitive dimension.
- Statement #9 – “I frequently interact with other students in this online course” with a mean score of $M = 3.90$ in the emotional dimension.
- Statement #7 – “I feel connected with the students who are in this online course “with a mean score of $M = 3.87$ in the emotional dimension.

Table 3: Means, standard deviations, and the level of engagement for each statement

		Statements	Mean	SD	Level
Emotional engagement	1	This online course enhanced my interest in learning.	3.41	1.19	High
	2	I am motivated to study when I take an online class.	3.04	1.11	Moderate
	3	This online course was very useful for me.	3.46	1.32	High
	4	It is very interesting to take online courses.	3.24	1.31	Moderate
	5	After taking an online lesson, I look forward to the next one.	2.97	1.20	Moderate
	6	I am satisfied with the online course that I am taking.	3.53	1.22	High
	7	I feel connected with the students who are on this online course.	3.87	1.15	High
	8	I feel a sense of belonging to this online course community.	3.39	1.13	Moderate
	9	I frequently interact with other students on this online course.	3.90	1.11	High
Cognitive engagement	10	I study the course content with other students.	3.47	1.21	High
	11	I try solving difficult problems with other students when I encounter them.	3.94	1.03	High
	12	I work with other students on online projects or assignments.	3.46	1.55	High
	13	I ask other students for help when I can't understand a concept taught in my online course.	4.01	0.94	High
	14	I can derive new interpretations and ideas from the knowledge I have learned in my online course	3.61	0.94	High
	15	I can deeply analyse my thoughts, experiences, and theories about my knowledge in this online course.	3.21	0.95	Moderate
	16	I can judge the value of the information related to the knowledge learned in this online course.	3.49	0.90	High
	17	I tend to apply the knowledge I have learned in this online course to real problems or new situations	3.71	1.05	High
	18	I have tried approaching the subject of this online course with a new perspective	3.53	1.05	High
Behavioural engagement	19	I communicate with the instructor privately for extra help.	3.47	1.29	High
	20	I often ask the instructor about the contents of the lesson.	3.10	1.12	Moderate
	21	I study related learning content by myself after the online lesson.	3.71	1.07	High
	22	I try removing all distracting environmental factors when taking online classes.	4.27	0.78	Very High
	23	I manage my own learning using an online system.	3.81	1.23	High
	24	When I take an online course, I plan a learning schedule.	3.59	1.06	High
		Overall	3.55	0.60	High

These results could be attributed to the students' technical skills in the ILT Department. One of the department's objectives is to develop students' skills in educational technology and eLearning.

Additionally, many courses in the ILT Department used the computer labs for the practical part. Some courses also had online discussions in either Moodle or WebCT (Al Musawi, 2010) more than 12 years ago. Furthermore, the department designed its online courses using a blended learning strategy (Ahmed, 2020). This finding is supported by Schindler et al., (2017), who reported that computer-based technology positively affected student engagement. It is also supported by Hampton & Pearce (2016) who concluded that student engagement in online courses tended to be high.

Analysis of the Moodle reports

The statistical reports from the Moodle system measuring student engagement in the courses' LMS were analyzed descriptively. Weekly reports were extracted from the five online courses over nine weeks. In Table 4 below, the total and average of the student views and posts in the five courses are shown.

Table 4: Total number and the average of the students' views and posts for the five courses

Variables	Views	Posts
Course 1	11888	1442
Course 2	3833	533
Course 3	2482	132
Course 4	3094	272
Course 5	8046	362
Total	29343	2741
Average per course	5868.60	548.20
Average per week	3,260.33	304.55

Figure 2 also shows a screenshot of the Moodle statistical reports in the LMS. Again, the weekly frequencies were calculated for the student views and posts.

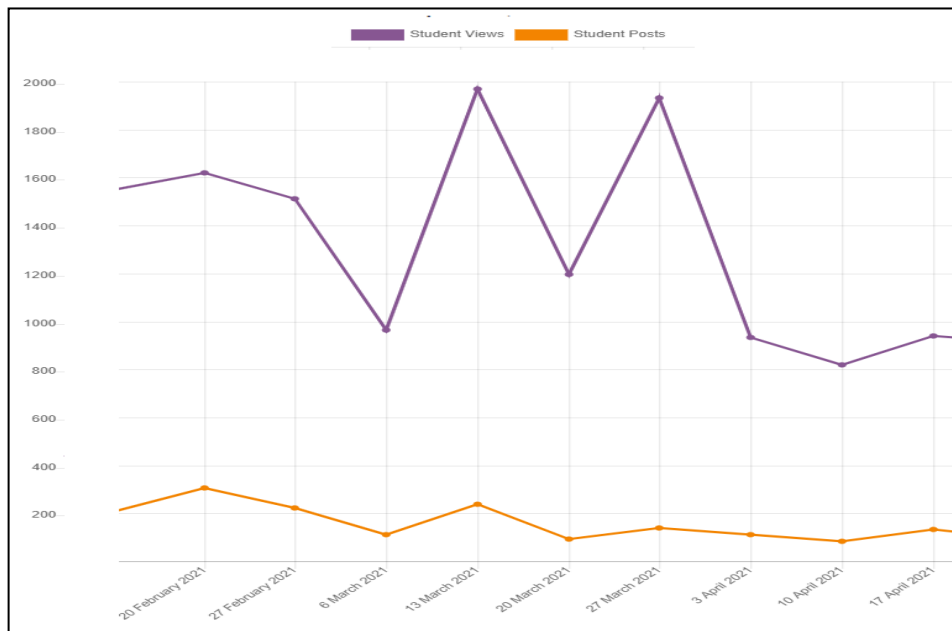


Figure 2: Screenshot for Moodle Statistical Reports from the LMS

As seen in Table 4 and Figure 2, the participants accessed the five courses and viewed the courses' objects and materials about 3,260.33 times per week. Further, the participants made 304.55 posts per week, indicating that the student engagement in the LMS courses was high. However, as the reports were analyzed quantitatively, these findings represented only the students' behavioral engagement.

Analysis of the instructors' interviews

For triangulation, the interview was used. The instructors of the five courses were interviewed to obtain comprehensive data about student engagement. The data were analysed manually using deductive thematic analysis.

The instructors were asked, "*How do they check their student engagement?*". The results indicated that all instructors stated that the learning management system helped measure student engagement and provided them with a general view. As a result, they could identify the students engaged in the course and the lagging students. Additionally, communicating with lagging students individually, either by email or by WhatsApp, was the strategy most used by the instructors. The strategies of the emotional engagement varied between having continuous communication with students through WhatsApp groups, showing care for them by asking about their situation in the course and their learning, or having individual short online meetings with them and accepting their excuses as much as possible. For example, instructor A said,

"You must be a human, and you must be there for your students".

The instructors also agreed that the student emotional engagement was difficult to measure in e-learning. However, all participants explained that they did their best to alleviate this challenge.

The instructors were also asked, "*What strategies do they follow to increase and maintain their student engagement?*" The results showed that the instructors applied several strategies to increase student engagement, and they tried different strategies to resolve student disengagement issues. Table 5 presents the strategies mentioned by the instructors.

Table 5: *Strategies followed by instructors to increase student engagement*

Categories	Strategies
Participation in online classes	The flipped classroom, Padllet web app for live written discussion, verbal discussions, Google Meet, live chat
Time management skills	Clear course syllabus, tasks reminders and deadlines, divide the course work into small assignments
Online discussions/ forums	Set a rubric for the discussion forum, design the discussion questions, participate in the discussion, and ask about student experiences and opinions.
Emotional engagement strategies	Continuous communication with students, showing care, individual short online meetings with the students
Cognitive engagement strategies	Authentic assessment activities, reflective learning activities, peer evaluation

The high level of student engagement demonstrated by the students in the survey and the LMS reports could be attributed to the instructors' awareness of the importance of following up, checking and maintaining student engagement, as mentioned in the results of the interviews. Additionally, many students' increased participation in online discussions and forums may point to a desire for community engagement when many were isolated and sheltered in place. Moreover, it could also be attributed to the effectiveness of the instructors' strategies for increasing and maintaining student engagement. This finding was supported by several studies on student engagement (Nagi & Suesawaluk, 2008; Dixson, 2015; Zanjani et al., 2016; Moubayed et al., 2020), which indicated that instructors teaching style and well-designed tasks were determinants of the instructors' efforts and impact on student engagement. They also concluded that highly engaged students were characterised as having a high number of forum interactions and a high number of posts and views in the course LMS. However, this finding contradicts the findings of Aguilera-Hermida (2020) and Salta et al., (2021), which reported a decrease in students' emotional and cognitive engagements in online learning during the COVID-19 pandemic.

What challenges affected students' engagement in online courses in the ILT Department during the COVID-19 pandemic?

To answer the second research question, interviews were conducted with instructors and students. Instructors were asked to indicate whether they encountered or suffered from any challenges that affected student engagement related to the students, the learning activities, the LMS, their skills as online instructors, or any other challenges on their online teaching courses during the pandemic. The students were also asked to indicate whether they encountered or suffered from these challenges. The data obtained from the interviews were analyzed manually using thematic analysis. Table 6 illustrates the students' engagement challenges categories and themes.

Table 6: Students' engagement challenges categories and themes

Categories	Challenges
Challenges related to students	Time management
	Study workload
	Low class participation
	Communication barriers
	Student readiness
Challenges related to the instructor	Students' expectations
	Increase in instructors' burdens
Challenges related to learning activities	Online discussions

As shown in Table 6, challenges were classified into three categories: challenges related to students, challenges related to the instructor, and challenges related to the learning activities.

Challenges related to the students

The results showed that the challenges related to the student were study workloads, time management, low-class participation, communication barriers, student readiness, and student expectations.

Time management: All instructors agreed that time management was a big challenge for the students. They usually received requests from students to change the submission deadline of the course assignments and projects. Instructor A noted,

“some students really lack time management skills. They left an online activity from Week 2 till Week 10 and then they came in and just wrote anything. How can they learn if they do this?”

The students viewed time management as a big challenge, and it was worse since they attended courses online from home. All the students interviewed considered time management a challenge.

Study workload: Five out of six students interviewed reported that the study workload increased in online learning during the pandemic. The study workload was also considered a challenge by 13 students in the open-ended survey question. One of the students interviewed noted,

“The study workload increased in the online learning. First, we attend the synchronous meetings, then we go back to watch the lectures records, daily activities, projects, and online discussions, and actually, I spent the whole day studying even on the weekend”.

Low class participation: Most of the instructors (four out of five) agreed that engaging students in the online classes (online meetings) is the biggest challenge. Although they followed various strategies to encourage students to participate in synchronous meetings, many students still did not participate.

Communication barriers: This was considered a challenge by three of the instructors interviewed and three students. The absence of body language and non-verbal communication between the instructor and students are communication barriers that caused student disengagement from the participants' perspective. For example, instructor E said,

“We have good students who are motivated to learn and develop themselves. But the problem is the communication between the instructor and the students or the students themselves. We still don't have that good communication in online learning.”

The above findings are congruent with several studies (Subramainan & Mahmoud, 2020; Hussein et al., 2020; Aguilera-Hermida, 2020; Kebritchi et al., 2017). These studies, in general, indicate low class participation, student expectations, communication barriers, home distractions, study workload and technical and Internet problems as significant challenges in online learning.

Challenges related to the instructors

Instructors were asked to indicate whether they encountered or suffered any challenges that could affect student engagement in online courses during the pandemic. The increased instructors' burden was the most recurrent challenge. Four of the instructors agreed that the responsibility to increase the level of student engagement rests on the instructor. However, all instructors mentioned that their burden increased in online learning due to the quick forced transfer to online learning during the COVID-19 pandemic. Therefore, from the instructors' perspective, the increase in the instructors' burden reduced their ability to increase students' engagement. Instructor C noted,

“There are many roles for the instructor in terms of the course design. Materials should be available in different formats for the students. You must spend time monitoring the students. You must be there to support not only during the work hours but all the times, which is, right now, what many instructors are seafaring from.”

Challenges related to the learning activities

Instructors were asked if they faced critical challenges related to the LMS or which learning activities were challenging to enhance student engagement. No instructor reported critical challenges related to the LMS or group work activities. The students interviewed supported the instructors' point of view. They stated that they didn't face any challenges related to the group work activities. Therefore, the levels of student participation in LMS activities could significantly enhance students' engagement and improve their academic performance in online courses (Avcı & Ergü, 2019).

CONCLUSION

Student engagement in online courses is the key to student success. Although the pandemic has caused a rapid shift toward online learning, the triangular investigation of student engagement carried out in this study yielded some authentic results which showed that student engagement can be increased and maintained despite the challenges of online learning during the COVID-19 pandemic. The interviews with students and instructors revealed some challenges that affect student engagement. Nevertheless, the students in the ILT Department showed a high level of engagement. These findings also confirmed that online learning could open new horizons to improve students' experience and enable them to be emotionally, behaviourally and cognitively engaged in the learning experience.

Further, measuring student engagement from different dimensions can shed light on the successful aspects of students' learning experience, which need more enhancements. Besides, it can clarify aspects that require further research and evaluation. In conclusion, every new experience accompanies some challenges, but technology can provide our students with a good learning experience if appropriately applied.

Limitations

The key limitations of this study can be declared as follows:

- The research population: The population was limited to only one department in the College of Education due to the researcher's time constraint. In addition, due to the researcher's objective to use a purposive sample to reach a comprehensive understanding by using three different data sources to answer the first research question, it could be difficult to generalize the research findings.
- Quantitative analysis of the LMS reports: The LMS reports were analyzed quantitatively because of the time limit. Therefore, it represented only the behavioural engagement dimension.
- The limited number of interviews with some students could affect the representativeness of the sample.

RECOMMENDATIONS

Policymakers should focus on eliminating the barriers this study highlights to create an environment of effective online learning at SQU. Based on the findings and discussions presented here, we offer policymakers at SQU the following recommendations for increasing and maintaining students' engagement in online courses.

- Encouraging SQU professors to use different teaching and learning styles helps engage more students. Encouraging SQU professors to apply engaging teaching tools, such as Google Forms, Wikis, Discussion Boards and course announcements into their e-learning courses to increase learning and engagement.

- SQU professors need to spend some time keeping their students engaged when they are designing their online courses.
- SQU professors should use programmatic assessment as a measure of student success. This form of assessment is more likely to increase student engagement.
- SQU professors should use Moodle reports to measure student engagement. Measuring student engagement from different dimensions using more than one data source to reach authentic results can lead to critical methods for improving the student learning experience.

Recommendations for further research

Future studies investigating the challenges that affect student engagement in online learning could focus on collecting data from many colleges at SQU with various specializations. That could greatly increase the generalisability of the results of our current study.

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