A Review of Higher Education Students’ Online Engagement Under The COVID-19 Pandemic

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Abstract. The spread of COVID-19 has presented enormous challenges to higher education students all over the world, prompting these students to switch from face-to-face to online courses. Previous researchers have focused on how university students in specific countries engage in online learning. However, the engagement of university students in online learning on a larger scale has not been thoroughly investigated. This study provides a comprehensive discussion of student engagement in online learning at large higher education institutions around the world during the COVID-19 pandemic. This study focuses university students need to attend university online. Since “engagement” is considered a multidimensional term, this review evaluates studies related to the idea of global university students’ online “engagement” in terms of three unique but interconnected dimensions: behavioral, conscious, and emotional engagement. This review can serve as a reference point for higher education institutions, education policymakers, and teachers in various countries as they work to develop more effective solutions to increase online participation of university students.

1 Introduction

The outbreak of the COVID-19 pandemic brought countless challenges for human activities in modern society [1]. One of the affected activities is the education, especially higher education among the worlds. According to The World Bank [2], by 8 April 2020, 175 countries had shown closure of higher education institutions and more than 220 million post-secondary students were either severely disrupted or terminated their study because of COVID-19. In respond to this crisis, global organization like UNESCO, WHO and UNICEF proposed that online education may assist students keep up their education [3]. To deal with these challenges, universities are trying to make sure students’ engagement as they need to make sure students online experience must be similar as face-to-face leaning experience.

Researchers had turned their attention to student involvement because of its link to academic performance. Bond et al. [4] found a positive correlation between student engagement and academic performance. Students’ online involvement at universities throughout the world required to be assessed to guarantee students’ learning outcomes in the online learning environment. The amount of effort students put into their learning activities is commonly recognized as the definition of student engagement, a complex notion that has multiple interrelated components. The growing number of related studies often looked at students’ online engagement from three perspectives: behavior, cognition, and affect. However, it’s important to note that there is still a lack of recent connected material [5]. Even though most researchers are concentrating on how engaged online students are, relatively few of them have looked at previous research findings globally. Therefore, this study aims to examine university students’ engagement all over the world from three dimension of behavior engagement, cognitive engagement, and affective engagement.

Although it was ambiguous at the time, the term “student engagement” initially surfaced in the 1950s and 1960s. Throughout the decades of evolution, the definition has become increasingly apparent [6]. According to Salas et al. [7], Tyler [8] and Pace [9] contributed a lot to the emergent by proposing the idea about the time student spend on tasks and the extent of students’ effort. What’s more, Bowen [10] started to use the word “engagement” to describe the multitude of behavior that impacts students’ achievement. Bowen [11] emphasized the growing importance of the word “engagement” that the educational field should pay attention to. However, the definition remained ambiguous at the time. Only a foggy agreement has been reached among researchers that engagement should be a multidimensional term [12,13]. Among several relevant multidimensional models, the most popular one is the three-dimension model put forward by Fredrick et al. [14] which contains behavioral, cognitive, and emotional engagement.

Universities around the world are collectively prepared for the need to move from offline to online delivery, and they create an online learning environment that they closed the offline campus and asked the teachers to record their teaching videos and then put them up on the school's own website for students to watch. The online learning brought by outbreak frustrated students because they faced enforced isolation and difficulties of adapting
to online learning, whether it is a physical sense of not being able to afford electronic devices or a physical sense of being more accustomed to offline learning. According to Cullen et al. [15], it can be difficult for students to stay interested in their online coursework for a long period of time, particularly they get bored due to the lockdown. The behavior that Rajab et al. [16] have described as reflecting the above concern is when students mark proxy attendance while they are engaged in other activities. Lacking engagement among students further leads to a series of subsequent problems like decline in academic performance, increasing mental health issues and extend educational gap.

This study provides a review of online engagement in the following three dimensions: behavioral engagement, cognitive engagement, emotional engagement. Under the background of COVID-19, students from worldwide meet issues in maintain these three online engagements.

2 Behavioral engagement

Most of the current research related to students’ behavioral engagement focus is students’ online course participation. A remote learning environment produces challenges for higher education students’ online participation. Some studies reported a higher student drop-out rate during the online learning process compared to face-to-face learning [17,18]. For example, Fuente et al. [18] used mixed research to investigate 27 students in Brazil’s higher education institutions and they found that 66.7% of students reported dropping out from online courses. Adnan and Anwar [19] suggested that one of the reasons that cause this situation due to the economic malaise and technological gap among those developing countries, which enable those local students to have difficulty participating in the online technological system. What’s more, Ferreira et al. [20] discovered that online courses are frequently associated with high student dropout rates, owing to the lack of consideration for students’ affordability in the learning design and delivery methods of online courses. By combining these results, it can be assumed that because of the COVID-19 epidemic’s global economic downturn, disadvantaged families in developing countries are under a more financial strain, which leads to students’ inability to pay for the electronic systems required to support online learning. Ultimately, the possibility of students dropping out of university. However, based on some of the current studies, the only conclusion that can be drawn is that high dropout rates in the context of the COVID-19 epidemic are partially tied to the economic strains that developing nations are experiencing, and no studies have surfaced that draw direct causative implications. As a result, it can conclude that higher education students’ online participation in the setting of the epidemic may be influenced by their origin in developing countries, although direct causation evidence is missing.

In addition, students’ online participation has also been influenced by terrible technology issues. As Regalado and Galeano [21] suggested, online learning delays caused by a lack of reliable Internet connectivity might impair student engagement. Naik et al’s [22] survey of 874 students from India’s higher education institutions supported this suggestion by reporting that 49.3% of participants that come from India’s rural and remote areas are encountering technology problems like power outages, network data limitations and poor internet access speed. Similarly, Elfirdoussi et al’s [23] quantitative research towards 3037 students from Morocco’s 15 universities conducted a result suggesting that 35.34% of students are dealing with weak internet access. Samar Yakoob’s [24] idea related to the technology issues that remote students are facing reinforced this conclusion. And he also proposed that the technology issue is that students are not only unable to enter the system and therefore are absent, but they may also be unable to register on blackboard owing to issues with the university’s website even though they successfully participate in class and thus appear as absent on the university’s system [24]. Generally, those students who are facing internet problems show less participation rate than those normal students [25]. Therefore, due to network issues, distance learning undergraduates can be unable to participate in online learning or can participate but not be effectively registered, resulting in dismal student participation during the outbreak.

However, online learning provides an unparalleled opportunity to engage in learning for certain types of student demographics. Lup and Mitre [25] discovered that the variable of student caregiving to family members was positively associated with student-initiated learning in their quantitative study of Romanian undergraduate students.

3 Cognitive engagement

3.1 Motivation to learn

According to El-Sayad et al. [26], Students’ cognitive engagement can be referred to as their interest in learning and conquering the challenges in the study process. Therefore, university students’ learning motivation and self-regulation have been examined by researchers to identify their cognitive engagement in online studies after the breakout of COVID-19.

Motivation for learning has been regarded as a consistent interest in attempting to accomplish aims, seeking belief, and preserving attitudes [27]. This kind of motivation has been considered intrinsic motivation instead of extrinsic motivation, which comes from outside the environment. Intrinsic motivation is essential for high education students because it helps them manage their behavior to continue to do their academic work well [14, 28]. Usher et al. [29] used quantitative approaches in their study of 358 psychology majors in the Southeast of the United States following the COVID-19 breakout to examine how the transition from in-person to online learning affected students’ psychological states. In their survey, more than 80% of students said they were less motivated to study than they were when they had a face-to-face learning environment. One of the explanations suggested by Usher et al. [29] as to why this would be the
situation is that studying challenging material without the usual support from professors made it harder for college students, which led to a fall in their motivation. Similarly, the data collected from 298 students in Aguilera’s [30] research confirmed that switching from in-person to online learning decreases students’ motivation because there is less connection between instructors and fellow students. Their research used an online questionnaire based on Kemp et al.’s [31] construct indicated that students show a strong preference for in-person lectures and difficulty adjusting to online courses.

Teacher support has been defined as a crucial element during the process of developing students’ motivation [32, 33]. Students are more motivated if they receive guidance from their lecturers and prompt responses to their questions [34-36]. Naseer and Rafique [37] indicated that the impact of teachers’ help is becoming even more important in online learning. They used the PROCESS macro approach in their study of 406 undergraduate students in Punjab during the pandemic to demonstrate the beneficial connection between teachers’ academic support and students’ motivation. They strengthen the importance of teachers’ interaction with students not only in face-to-face education but also in online learning environments. Moreover, Usher et al. [29] appeal that teachers also need to make their classroom content more intriguing for students through remote formats or adopt interesting new teaching methods in their classes.

3.2 Self-regulation learning

Self-regulation learning involves not only the ability to conduct self-directed learning but also the utilization of learning opportunities that seek for improvement from these academic activities [38].

Undergraduate students’ self-regulation learning ability significantly influences their learning experience by affecting both their academic performance and overall wellness [39,40]. Therefore, undergraduate students’ self-regulation learning in online education background during COVID-19 has also been examined by several researchers.

The self-regulation learning of students has been reported low under online learning environment. For example, the aim of Hamdan et al.’s [41] research towards 702 students from 32 universities in Jordan contained the interest of investigating students’ internet self-regulation in online learning environment. They used a cross-sectional design in their study to collect data from many participants and demonstrating the connections between the variables. The students in their study reported low self-regulation score. Molina Gutiérrez et al. [42] conducted similar result in Ecuador, where they launched research towards 159 students who studies Education and law and reported encountered difficulties towards self-regulation learning. However, their result inconsistent with Kuo et al.’s [43] result which reported higher mean score of students’ self-regulated learning in online learning than students in traditional classroom. In addition to having participants from the same college, which suggested a narrower range of responders, their survey design also allowed students to provide input on their

preferred courses. Researchers allowed students who took more than one course throughout the semester can select only one course to respond to survey questions. Students could therefore tend to choose their preferred course when answering the questionnaire.

4 Affective engagement

According to Salas et al. [5]. “Affective engagement” is defined as the emotional reaction to the learning environment and the study activities that students participate in. The emotional component contained the positive and negative dimensions or often known as “disengagement” [44-46]. The studies on students’ affective involvement in COVID-19 pandemic can thus be divided into two categories: those that focused on positive emotions like satisfaction or those that sought to study unfavorable emotions like tension or the anxiety.

4.1 Positive affective engagement

For researchers who focused on university students’ satisfaction towards online learning during pandemic, they tried to discover the indicator of students’ satisfaction. Hamadan et al. [41] examines variances in students’ satisfaction with online learning based on various parameters. And they reported low satisfaction rate among the students. The result showed no statistical difference between the score of male and female university students’ satisfaction. Researchers hypothesized that gender is probably not the indicator of students’ satisfaction because there was no gender effect been observed. Their study result consists of Harvey’s [47] research, which conducted exploratory factor analysis, and observed similar satisfaction result among 927 female and male students who took an online course at the University of Mauritius. On the other hand, Hamadan et al. [41] reported a significant difference between the result of fifth-grade students and first-grade students that the former displayed a higher level of satisfaction compared to the latter. The experimenter suggested that the results are likely to be because the fifth-grader students have adapted to the classroom environment and have more social interaction with their tutors and other classmates.

Other researchers indicated that previous online experience or computer self-efficacy may also contribute to higher satisfaction [48-50]. Landrum et al. [48] found that the more online previous experience students have, the more enjoyable their online study will be. Kovačević et al. [49] and Ferrer et al. [50] suggested that both optimistic attitude and prior experience of using the computers can contribute to the prediction of university students’ satisfaction. Computer self-efficacy, refers to people’s elevation of their computer proficiency [43], also been reported as another factor that has an impact on learners’ satisfaction. Jiang et al. [51] applied their study to five Chinese universities and 936 students participate in their questionnaires. Their result is consistent with previous studies [52-56] by further confirming that user satisfaction and usability of online educational tools are
strongly related to university students’ computer self-efficacy.

Based on synchronous and asynchronous components, Zeng and Wang [57] also discussed how the design of online lecture impact students’ satisfaction. According to these two factors, they proposed that students are more satisfied with their online experience. The term “asynchronous component” describes a type of learning where students use their schedules to study, much like they would when watching a recorded lecture. Both Baker and Cavinto [58] and Jamieson [59] observed an increased satisfaction among students due to the flexibility of getting in touch with asynchronous study materials like PowerPoint and online articles. Chung et al. [60] confirm this idea and further suggest that the difficulty of understanding online learning material will bring a negative impact on students’ satisfaction. In contrast, “synchronous learning” demands the social presence of the students. As a result, this kind of learning typically involves meetings or discussions, such as seminars over Zoom. The social interaction added by this “synchronous learning” increases students’ satisfaction with the online education background [61]. Therefore, several elements that affect college students’ satisfaction with online learning have been examined, even though the conclusion of whether student satisfaction increased or decreased was inconsistent.

4.2 Negative affective engagement

On the other hand, research has also been done on negative emotional engagement, such as stress. These studies were mainly concerned with how the pandemic’s effects on students will be detrimental [62]. According to Huang and Zhang [63]. The forced isolation experienced by college students during the pandemic increased worry and stress, necessitating the need for mental support from their professors and colleagues. Similar research was done by Mendoza et al. [64]. When they investigated college students who majored in engineering and science. Their findings indicated that the stress brought on by isolation had a detrimental impact on students’ affective engagement, which in turn had a poor impact on their academic achievement. In cope with students’ various stress issues, researchers gave specific suggestions and targeted solutions. For the stress that results from troubles in attaining social affection, both Yasin et al. [65] and Puranachaikere et al. [66] proposed the request for universities to create a “student-friendly” learning environments and routinely organize extracurricular stress-relieving activities online for students in the same university. Researchers also discussed other sources of stress like academic-related worries. Nimavat et al.[67] suggested that students have less interaction with their professors as a result of the lockdown policy brought on by the epidemic, and they are required to comply with online classes by accepting course modifications, which puts pressure on their academic performance. To facilitate academic conversations between students and teachers as well as between students, chat rooms and forums could be created. Additionally, university could regularly gather student feedback to assess the courses that teachers are teaching.

5 Conclusion

This review looked at how students engaged online from a variety of angles, including behavioral, cognitive, and emotional involvement. Economic pressure and subpar technology have a negative impact on students’ online participation in behavior engagement. However, adopting to online learning improves participation for students who must take care of their families because it allows them to spend more time learning and less time travelling. Students’ motivation has been seen to decline in study on cognitive engagement, and teacher assistance has been stressed to address this issue. Similar findings in pupils’ self-control appeared to be at odds with earlier COVID-19 research findings. Therefore, this evaluation offers a broad overview of university students’ online activity during COVID-19 pandemic with the intention that it will offer practical advice to universities all over the world to help them better increase students’ online engagement under the difficulties brought by the current pandemic. This review is constrained in that it does not consider the influence of reasons at the family level on students’ online engagement. Future reviews may consider fusing family and school factors to further explore students’ online engagement.

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