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## Factors Affecting Student Engagement in Online Teaching and Learning: A Qualitative Case Study

Basilus R. Werang BRW

*Ganesha University of Education (Universitas Pendidikan Ganesha)*, [lirang267@yahoo.co.id](mailto:lirang267@yahoo.co.id)

Seli Marlina Radja Leba

*Musamus University*

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## Factors Affecting Student Engagement in Online Teaching and Learning: A Qualitative Case Study

### Abstract

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### Keywords

online teaching and learning, factors, student engagement, qualitative case study

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I would like to thank to all the online lecturers who have actively participated in the study.

# Factors Affecting Student Engagement in Online Teaching and Learning: A Qualitative Case Study

Basilius R. Werang<sup>1</sup> and Seli Marlina Radja Leba<sup>2</sup>

<sup>1</sup>Ganesha University of Education, Indonesia

<sup>2</sup>Musamus University, Indonesia

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Students' engagement is a decisive prerequisite for effective teaching and learning. Yet, the discussion on students' engagement in online teaching and learning is still limited. In this study, we explore online lecturers' perceptions of factors affecting student engagement in online teaching and learning offered at Musamus University, Indonesia. To reach this objective, we employed a qualitative case study using in-depth interviews with 10 online lecturers. Obtained data were thematically analyzed. Results of data analysis revealed that students' lack of access to a personal computer or smartphone, as well as the internet, were found to be the most significant factors affecting their engagement in online teaching and learning, followed by their poor learning habits, lack of technology skills, and unfamiliarity with technology. Results of this study are crucial for the online lecturers to be more aware of the level of students' access to a personal computer or smartphones and the internet, as well as incoming students' digital skills and learning habits. Given that improving students' engagement is not only the responsibility of online lecturers, university leaders, as the top administrators, should genuinely consider providing teaching and learning facilities, including computers and internet connection, for students in need.

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## Introduction

Colleges and universities around the world, including Indonesia, have been closed during the COVID-19 outbreak. In response to the impact of the COVID-19 pandemic, the Indonesian Minister of Education and Culture (2020) published a Circular Letter No. 3 to both prevent the rapid transmission of COVID-19 in educational institutions and to make various learning adjustments for students and teachers (Habeahan et al., 2022). As a result, education has radically changed with the rise of online learning in which the instruction is done remotely and on digital platforms (Li & Lalani, 2020; Maheshwari, 2021) and it has proved to be a godsend for both students and lecturers who have been unable to attend school owing to the fear of COVID-19 spreading.

The existing literature on online teaching and learning contained a lot of contradictory information and research. Some existing research recommended that online teaching and learning is becoming more popular and successful, whereas other research suggested that many students continue to struggle with it (Barrett, 2013). Furthermore, the existing literature suggested that there are a variety of reasons for these discrepancies, ranging from students becoming more familiar with the online teaching and learning process to students enrolling in

online teaching and learning solely for the convenience of doing so without considering how they would best learn the material (Graff, 2003).

Students' engagement has been a major concern during the COVID-19 outbreak as many lecturers found it difficult to transition to online teaching and learning and ensure that all the students, particularly the disadvantaged ones, remain motivated to engage in online teaching and learning (Habeahan et al., 2022). There have been several current studies that investigated factors affecting student engagement in online teaching and learning (Dwivedi et al., 2019; Lam, 2020; Lazareva, 2018; Maheshwari, 2021; Vonderwell & Zachariah, 2005), but we are still encouraged to explore this topic more thoroughly because, to the best of our knowledge, no studies have empirically explored factors affecting student engagement in online teaching and learning within higher education institutions situated in a disadvantaged area of Indonesia. Thus, this study intended to fill this gap by investigating factors affecting student engagement in online teaching and learning taking the online lecturers in Musamus University, Indonesia, as the informants. This study was guided by the following research question: What are the factors affecting student engagement in online teaching and learning offered at Musamus University, Indonesia?

To answer the above research question, a qualitative case study using interviews (Leba et al., 2021) was employed to collect data from a total of 10 online lecturers at Musamus University, Indonesia. We believe that properly exposing factors affecting student engagement in online teaching and learning may be necessary for college and university leaders to seriously consider providing adequate teaching-learning facilities. Furthermore, the study's findings may be useful for online lecturers to benefit from information about how students have been affected and the extent to which they manage their classes to ensure that no students are left behind.

## **Related Literature**

### **Student Engagement**

Student engagement has been recognized as one of the most important factors impacting students' academic progress (Kuh, 2009). Student engagement has even commonly been considered as a panacea for students' perceptions of schools as uninteresting or merely a game of grades (Burkett, 2002; Peng, 2017). Even though student engagement has been studied a lot (Bond & Bedenlier, 2019; Bond et al., 2020; Hu & Kuh, 2002), there is still limited literature on student engagement concerning online teaching and learning (Bryan et al., 2018; Czerkowski & Lyman, 2016; Redmond et al., 2018). Bryan et al. (2018, p. 1-2) argued that while the student engagement literature is well established, the literature on student engagement specific to online teaching and learning is still limited. In the same vein, Mayadas et al. (2009) asserted that online teaching and learning continues to grow rapidly and creates new opportunities for all interested parties such as students, teachers, education policymakers, and educational institutions themselves.

There are various definitions of student engagement. Student engagement refers to students' readiness to actively participate in everyday school activities such as class attendance, classroom tasks submission, and following instructor direction (Chapman, 2003). Meanwhile, Ting et al. (2020) defined student engagement as students' active participation in and ownership of their learning (Ting et al., 2020). In the same vein, Skinner and Belmont (1993) defined student engagement as student active participation in learning activities that is accompanied by a positive emotional tone. Based on the description given by the experts, online student engagement can be simply defined as students' readiness to willingly

participate in online teaching and learning in which students and lecturers are physically and temporarily separated through the use of technology devices and the internet.

### **Online Teaching and Learning**

Online teaching and learning encompass more than merely giving entirely online courses. Online teaching and learning had their origins in the tradition of online education (U.S. Department of Education, 2010) that can be traced back to 1960 at the University of Illinois, USA, where the students began to learn from computer terminals that were interlinked to form a network (Clark, 2020; Lowenthal & Moore, 2020; Sarkar, 2020).

Online teaching and learning are a suitable choice for courses that focus on the development of students' capacities, ranging from knowledge acquisition to evaluation (Bloom, 1956). Online teaching and learning take place in a virtual milieu through the internet (Khan et al., 2017). According to Nguyen (2015), the internet has made online teaching and learning possible, and many educators are interested in using it to help students improve their academic performance. No one definition encompasses all aspects of online teaching and learning due to the complexity of the concepts. Law (2021) defined online teaching and learning as the mode of teaching students via the internet. Meanwhile, Smith et al. (2016, p. 4) defined online teaching and learning as the mode of instructing students who are separated from their lecturers using one or more technologies. Smith et al. (2016, p. 4) further described online teaching and learning as a formal activity given entirely through the internet, with some support from auxiliary technology and it occurs when students and their lecturers are separated by terrestrial distance or by circumstances. Similarly, Finch and Jacobs (2012) defined online teaching and learning as a kind of teaching and learning in which the students and lecturers are separated. Whereas Zu et al. (2003) defined online teaching and learning as the way of delivering instruction using web-based technologies that allow students to participate in learning activities outside of the classroom, from both their homes and other locations. Based on these different concepts, online teaching and learning can simply be defined as a kind of education in which students and lecturers are separated and therefore, all the schedules and learning materials can only be accessed individually using the help of technology devices and the internet.

Hawai.edu (2020, p. 1) outlined several benefits of online teaching and learning: (a) online teaching and learning might take place at times that are more convenient and effective for the student, (b) online teaching and learning can be held in any location and can involve lecturers and students from all over the world, (c) online teaching and learning provides learning with a new relevance in today's society and professional industrial practice, (d) online teaching and learning makes it easier and more convenient to acquire and share knowledge, (e) online teaching and learning gives students access to a wider range of resources and information, (f) online teaching and learning can improve student's learning experiences by allowing them to collaborate across disciplines, cultures, and campuses, (g) online teaching and learning provides a method for equal opportunity amongst students and lecturers who are disabled, or who have accessibility issues that prevent them from attending face-to-face lectures, (h) online teaching and learning can promote digital literacy skills that are increasingly needed in today's society and workplace situations, and (i) online teaching and learning can simplify several administrative phases of teaching.

On the other hand, Montgomery College (2020) outlined several disadvantages of online teaching and learning as the following: (a) online teaching and learning requires more time than on-campus classes, (b) online teaching and learning makes it easier to postpone, (c) online teaching and learning requires good time-management skills, and (d) online teaching and learning may create a sense of isolation. Despite the apparent benefits of online teaching

and learning for both lecturers and students, many lecturers find it difficult to transition to online teaching and learning and ensure that all students, particularly those experiencing hardships, remain motivated and participate in online teaching and learning.

The shift to online teaching and learning during the COVID-19 outbreak in Indonesia was rapid, but the country's digital education infrastructure had not yet evolved to the level required to sustain and improve existing learning outcomes (UNICEF, 2021). Though Indonesia has been recorded as the largest population of internet users in the world with an internet penetration rate of 51% (Onitsuka et al., 2018), Indonesia is still facing the digital divide issue (Alexander, 2017; Elwick et al., 2013; Sossa et al., 2016; Wang et al., 2018) between the western and eastern parts of Indonesia (Hadi, 2018; Werang, 2018; Werang et al. 2017; Werang et al., 2019). Regardless of numerous innovations in digital learning, the pandemic highlighted the gaps and inequalities in the Indonesian digital education system that must be addressed (UNICEF, 2021). Indonesia's Minister of Finance, Sri Mulyani, highlighted the digital divide that has come under the spotlight during the coronavirus pandemic as the following:

When we talk about implementing online learning in Indonesia to accommodate the needs of our students, we are reminded that not everyone has internet access or the tools for it. There are some who have inadequate digital literacy skills, and they are the ones who will easily lose their access to education during the pandemic. (Rustandi, 2020, p. 1)

Several current research highlighted the digital divide. Srichanyachon (2014) investigated barriers and needs facing online students when learning English through a WebEx system. Using a survey questionnaire as a tool of data collection, the study found no statistically significant differences in barriers and needs of online learners based on gender, computer ownership, or computer aptitude. Students with high computer aptitude, on the other hand, faced fewer barriers to learning online than that of those with low computer aptitude. Srichanyachon (2014), further, outlined two challenges for students to enthusiastically join in online teaching and learning: (a) system related issues such as connection errors, systems troubles, communication desirability, and suitability, and (b) individual difficulties such as access to personal computers and internet capabilities. Habeahan et al. (2022) investigated students' perspectives of online teaching and learning. Using a survey questionnaire as the tool of data collection, the study found that most students were disagreeing with the fact that they have access to personal devices and that they can easily access both the internet and online classes. This study claimed that many colleges and universities in Indonesia, particularly those in low-income locations (such as Papua and Papua Barat Province), were facing difficulties integrating online teaching and learning since many students lacked access to both personal technology and the internet. In a similar vein, Agustina et al. (2020) investigated the challenges of having online learning activities. Using an open-ended questionnaire as the tool to collect data from a total of 85 students, the researchers claimed that many students experienced technical issues in their online classes such as unsupported gadgets, bad signals, and limited data packages. Nashruddin et al. (2020) investigated teachers' and students' perceptions of using email as a tool in distance learning. Employing questionnaires, documentation, and interview as the tool of data collection, the study found that students who live in remote areas do not have access to the internet.

## Factors Affecting Student Engagement in Online Teaching and Learning

Students' engagement is a decisive prerequisite for effective teaching and learning. Yet, the discussion on students' engagement in the online teaching and learning environment is still very limited (Lazareva, 2018). Scholars (Dunbar, 2004; Roddy et al., 2018) who are mainly concerned with discovering the best tools to utilize for effective online teaching and learning, argued that student practical and non-academic skills are behind their success in online teaching and learning. As online teaching and learning become common, especially since the COVID-19 outbreak, factors affecting student engagement in online teaching and learning should be paid more attention to determine and examine all students' experiences and problems during online teaching and learning (Skelcher et al., 2020).

The existing literature outlined a variety of factors affecting student engagement in online teaching and learning. DeVito (2016) conducted a case study to portray the aspects of learning experiences related to student engagement. Employing survey, focus group interview, and observations as tools for collecting data, the study indicated that students were actively engaged in online teaching and learning if the online instructors focused on (a) initiating good interaction, communication, and collaboration with students by involving themselves actively in the learning activities, (b) enriching students' educational experiences by increasing the level of academic challenges, and (c) fostering a positive climate among students by maintaining a supportive classroom and family environment.

Lazareva (2018) conducted a case study in the context of Uganda, gathering data from a group interview with 14 participants. The author referred to scaffolding from eligible peers and assistance of co-located peers as the most important factors determining online students' engagement. Apart from this core factor, the study emphasized the importance of the following factors: (a) students' knowledge and skills, as well as prior experience and familiarity with using technology, (b) the quality of internet connections, (c) informal online learning groups in which online students can seek help from more experienced peers to "stay on board," and (d) collaborative learning mode in which students can interact respectively.

Sengsouliya et al. (2020) conducted a convergent parallel study entitled "An Investigation on Predictors of Student Academic Engagement." Research data were collected using questionnaires (quantitative research approach) and interviews and observations (qualitative research approach). According to the study, the most powerful factors influencing students' academic engagement are a teacher and peer communication. Most students regarded a teacher's friendliness and kindness as critical factors in their academic engagement. Furthermore, students in the sample specified that they would be more engaged in learning if teachers provided opportunities for peer communications.

Since this study was dedicated to disclosing factors affecting student engagement in online teaching and learning offered at Musamus University, Indonesia, we only focus on the factors for online success proposed by Schrum and Hong (2002). In their study entitled "Dimensions and Strategies for Online Success: Voices from Experienced Educators," Schrum and Hong attempted to categorize the characteristics of effective online students by examining primary screening documents and mapping them to literature-based models. Using a survey as a data collection instrument, all the surveyed educators were asked to assess the dimensions and suggest strategies for ensuring students' success. As a result, seven aspects were effectively identified and confirmed as significant: access to tools, technology experience, learning preferences, learning habits and skills, learning goals, lifestyle factors, and personal traits. The study suggested that the following online teaching and learning practices improve student academic achievement: (a) students' posting profiles, (b) regular communication, (c) collaboration, (d) participation norms, (e) question and answer forums,

(f) thematic flexibility, and (g) maximizing technology needs (Schrum & Hong, 2002, pp. 60-65).

## **Method**

### **Research Site**

The site of this study is Musamus University. Musamus University is situated in Merauke city, the capital of Merauke district, Papua Province, Indonesia. Merauke district is one of the largest districts in Papua Province with an area of 46,792 km and a population of 223,382. Merauke, as an integral part of Papua Province, is categorized by the Indonesian Government as one of the remote and underdeveloped areas situated in the Eastern Part of Indonesia with the Human Development Index of 0.606 (Daftar Provinsi di Indonesia Menurut IPM, 2021). The Human Development Index of Papua Province is the lowest compared to other regions in Indonesia.

Musamus University is the only state university situated in Southern Papua area with a total of active students of 11,276 (consisting of 6318 males and 4958 females) and the total teaching staff of 342 (consisting of 192 males and 150 females) at the time of data collection. Musamus University got its “state status” on November 19, 2010, after nine years of being managed as both a private college (Merauke College of Technology) and a private university (Musamus University of Merauke) by the Anim Ha Education Foundation.

As a new state university situated in a remote and underdeveloped area, Musamus University has so many shortcomings in human resources, learning sources, and educational facilities, including technological devices for effective teaching and learning. There were no online classes in Musamus University before the COVID-19 pandemic started to hit Indonesia in February 2020. All the students of Musamus University, even until the time of data collection, enrolled for face-to-face classes only. The teaching and learning process for numerous classes at Musamus University began to shift in the year 2020, when the Indonesian Minister of Education and Culture issued Circular Letter No. 3 to prevent the rapid transmission of COVID-19 in educational institutions. In turn, the Indonesian Ministry of Education and Culture's Circular Letter calls on all schools and universities in general, and Musamus University in particular, to quickly adapt to the change by, for example, increasing internet bandwidth to enable staff and students to work efficiently and effectively.

### **Research Design**

This study design is a qualitative case study based on Creswell (2014) as it sought to disclose factors affecting student engagement in online teaching and learning offered at Musamus University, Indonesia. A qualitative study approach was employed as it allowed us to explore and obtain a deeper understanding of the online lecturers' perceptions of factors affecting student engagement in online teaching and learning (Bogdan & Biklen, 1992; Savenye & Robinson, 2013). One of the key characteristics of a qualitative research approach is that it is exploratory in nature and involves “an interpretative, naturalistic approach to the world” (Denzin & Lincoln, 2018, p. 31). It means that the researchers should study phenomena in their natural settings to make sense of and to interpret them in terms of the meanings the participants bring to them, “not the meaning that the researchers bring to the research” (Creswell, 2007, p. 39).

Case study research is a qualitative research approach (Creswell, 2007; Denzin & Lincoln, 2018; Merriam, 2009; Miles & Huberman, 1994; Stake, 2006). Merriam (1998) argued that a qualitative case study was “a holistic description and analysis of a bounded



phenomenon such as a program, an institution, a person, a process, or social unit” (p. xiii). According to Duff (2008), the selection of cases in a case study is more reliant upon how the topic is known, the nature of the case itself, and the philosophy of the investigators. From this viewpoint, the investigators' initial knowledge of the topic will determine which case will be studied from among the cases that have been ongoing (Sanjani, 2020) such as inadequate learning facilities, recruitment standards for teaching staff, lack of skilled teaching staff, lack of learning resources, student engagement in teaching and learning, and best practice of Curriculum “Merdeka Belajar-Kampus Merdeka (Freedom to Learn-Independent Campus).”

Musamus University lecturers' decision to transition from face-to-face to online classes may have impacted not only how the lecturers managed the switch due to their lack of prior experience teaching online, but also how students had to adjust quickly to become familiar with the transition made, including how to continue engaging in online teaching and learning offered. This study was intended to ascertain factors that influence students' engagement in online teaching and learning offered at Musamus University, Indonesia. To investigate the factors affecting student engagement in online teaching and learning, we proceeded to the online lecturers' natural setting (Bogdan & Biklen, 1992).

## Participants

As qualitative inquiry is unconcerned about the representativeness of the participants (Leba et al., 2021), this study solely focused on online lecturers teaching at Musamus University as informants. The online lecturers were working with students in online teaching and learning so they were aware of what was going on during the online classes. In addition, we discovered that the online lecturers were aware of the digital divide among students, as many students during the evaluation time, reported all the difficulties they faced during the online classes. From this viewpoint, we do believe they were able to provide us with the treasure of evidence about the phenomenon under inquiry, allowing us to learn as much as possible (Dörnyei, 2007).

Robson (2011) asserted that a case study helps us to learn about specific people at a specific time and place. Due to the COVID-19 outbreak, participants for this study were purposively established. Purposive sampling was also known as purposeful or selective sampling and we attempted to find participants who could provide the necessary data (Ames et al., 2019; Palinkas et al., 2015). Purposeful sampling is a frequently used qualitative research approach for identifying and selecting information-rich participants to make the most efficient use of limited resources (Patton, 2002). This entails locating and selecting individuals or groups of individuals who are particularly educated or experienced about a topic of interest (Creswell & Plano-Clark, 2011).

According to Creswell (2014), the ideal number of participants for a case study is between four and five. We first met with the dean of the faculty to obtain verbal permission to identify online lecturers who were teaching during the COVID-19 outbreak. We started to recruit the participants by getting in touch with the dean of the faculty and asking him for recommendations for exemplary online lecturers. We believe the dean was primarily aware of which lecturers teach online because all lecturers, during the COVID-19 outbreak, were required to report all aspects of the teaching and learning process and any problems encountered. The dean recommended 27 online lecturers as participants. We then managed to meet these recommended online lecturers personally to get their consent. We used face-to-face interactions as a primary method as we do not know them personally because they all teach in different departments. Of 27 online lecturers we managed to meet personally, only 10 online lecturers were willing to be interviewed. They were seven females and three males, aged 30 to 60 years, with teaching experience ranging from 1 to 30 years. We then arranged a

schedule for conducting interviews in participants' preferred locations and times following their consent.

## **Data Collection**

Given that the objective of the study was to describe online lecturers' perceptions of factors affecting student engagement in online teaching and learning offered at Musamus University, Indonesia, a qualitative case study was employed as we tried to probe an individual circumstance within the real-life context. We used interviews to collect data because it is the most common method of data collection in qualitative research (Sanjani, 2020).

We collected data using a combination of general and specific interviews at the same time. We began with a general interview about the participants' details (such as gender, age, and teaching experience) to justify that they were able to provide the information we were hoping to learn from, followed by specific interviews about the factors affecting student engagement within the context in which it occurred. Following Moustakas' (1994) assertion concerning the types of interviews, in this study, we used topical questions and informal interviewing with a general guided interview protocol. By focusing on the topic that we were genuinely interested in studying, we could easily work on revealing the factors affecting student engagement in online teaching and learning offered at Musamus University, Indonesia.

We created and developed the interview questions by modifying Schrum and Hong's (2002) survey questionnaires for online success to explore the participants' views on the topic we studied. We asked informants to share their experiences on factors affecting student engagement in online teaching and learning offered at Musamus University, Indonesia. The following are a few examples of questions we asked: Would you like to share your experience of factors affecting student engagement in online teaching and learning you offered? In your experience with your online students, are they familiar with using technological devices and the internet? What do you think about the online learning habits of your students? Because of the government's policy of restricting community activities during the COVID-19 outbreak, each interview lasted between 45 minutes and 60 minutes in the participants' preferred location and time. If the interview was not completed, we agreed to reschedule it for the following day. All interviews were recorded using an audio recording device.

Following Rowan's (1981) suggestion that researchers should consider not only how their interests are served by their research but also how the interests of the participants are served, in this study we acted ethically at the study site to ensure that the participants did not regard our presence as a disruption to their lives and professions. We began with the belief that participants are complex and they are to be respected. The starting point was that the research would be impossible to conduct without participants' special inputs. By doing so, we wanted the participant to feel at ease throughout the interviews and be willing to provide all the information we needed in a genuine and honest manner. The participants, in turn, were allowed to locate themselves within the text without fear of being identified by others in their institutions (Pickering & Kara, 2017). To protect the rights of the research participants, all the participants were asked to give their consent to voluntarily participate in the study. We were the only ones who had access to all the personal data. At the time of data collection, the study did not require any approval from the institutional review board as it is not a must in Indonesia.

## Data Analysis

We conducted this study as a qualitative case study to answer the following research question: What are the factors affecting student engagement in online teaching and learning? Qualitative data collection and analysis are synchronized through an iterative process (Hartley, 2004; Lester et al., 2020).

Data for this study were thematically analyzed. Thematic analysis is an approach for detecting, analyzing, and reporting patterns (themes) within data (Braun & Clarke, 2006). Thematic analyses employ analytic practices, such as sorting and sifting through the data set to find comparable words and/or links, which has been described as a practice shared by other qualitative research approaches (Miles & Huberman, 1994). Since this study was meant to answer the above research question, the theme created and developed in this study referred more to what we meant by factors affecting students' engagement in online teaching and learning offered at Musamus University, Indonesia.

We coded the data manually using the two cycles given by Saldaña (2013). In the first cycle of coding, we adopted "initial coding" (Saldaña, 2013) to identify informants' utterances that pointed to distinct factors they found to affect students' engagement in online teaching and learning. To get familiar with the data, we read the participant's perceptions one by one and made the initial coding of descriptive nodes based on each participant's perceptions. We did it manually through the hard copies of transcripts using highlighters. The following are behavioral examples of what we did in the first cycle.

**Table 1**

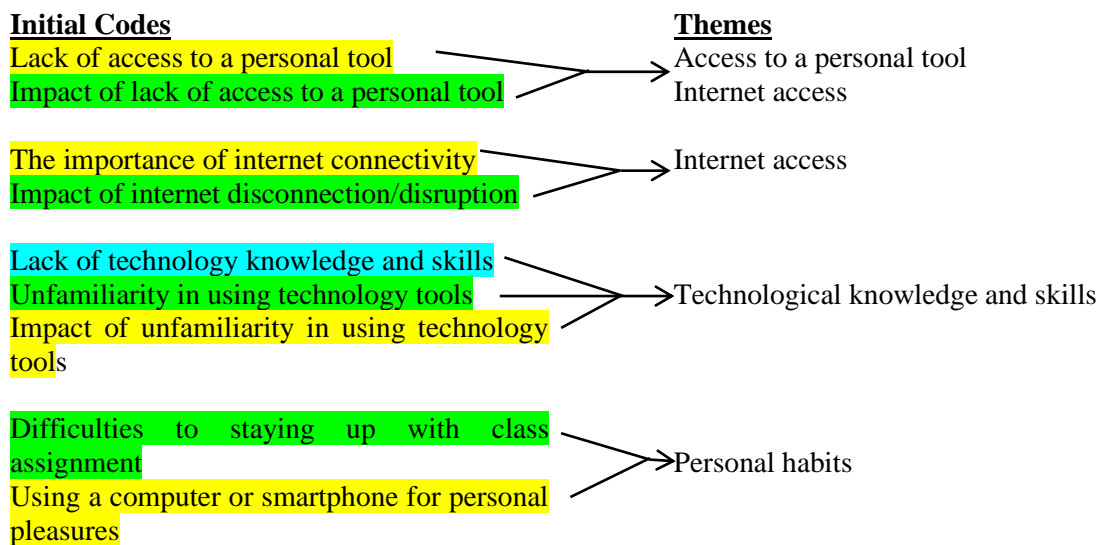
Interviewer's Questions	Participants' Response	Initial Code
Would you like to share your experience of factors affecting student engagement in online teaching and learning in terms of students' access to technological tools?	Students who do not have access to personal tools at home such as computers and smartphones are at a disadvantage. They have nothing to do with the online teaching and learning offered.	Lack of access to a personal technology tool  Impact of lack of access to a personal tool
	Many students do not have access to a personal computer or smartphone. This condition is, of course, very impactful when teaching and learning are carried out online. Many students are absent from online teaching and learning. It's a pity condition, but what else to say.	Lack of access to a personal computer and smartphone  Impact of lack of access
	Some of my students reported that they were not able to attend my online teaching and learning simply because they do not	Impact of lack of access  Conducting offline teaching and learning for disadvantaged students

	<p>have a computer or smartphone at home. During the COVID-19 outbreak, the only thing I can do for disadvantaged students is make an appointment to teach offline while adhering to the health protocol regulations.</p>	
	<p>One of the most important issues in online teaching is internet connectivity. Many students reported that they could not attend my online teaching and learning because of the frequent disconnection of the internet.</p>	<p>The importance of internet connectivity Impact of internet disconnection</p>
	<p>Many online students complained that they were not able to attend whole online teaching and learning because of the disrupted internet network.</p>	<p>Impact of internet disruption</p>
<p>In your experience with your online students, are they familiar with using technology devices and the internet?</p>	<p>Students should have a basic understanding of how to operate technological devices. When online teaching is still in progress, this ability is very essential. Lack of technological skills makes it difficult for the student to fully engage in online teaching.</p>	<p>The need for technological understanding Lack of technological knowledge and skills</p>
	<p>Students' unfamiliarity with technology makes it difficult for them to engage on time in online teaching and learning. Some students stated that they, sometimes, could only engage when the online teaching has been in progress.</p>	<p>Unfamiliarity in using technology tools Impact of unfamiliarity in using technology tools</p>
<p>In your experience with your online students, are their learning behavior affect their engagement in online teaching and learning you offered?</p>	<p>Many students have difficulties staying up with class assignments in online teaching and learning. Instead of doing class assignments, students frequently use their computers or smartphone</p>	<p>Difficulties staying up with class assignment Using computers for personal pleasures</p>

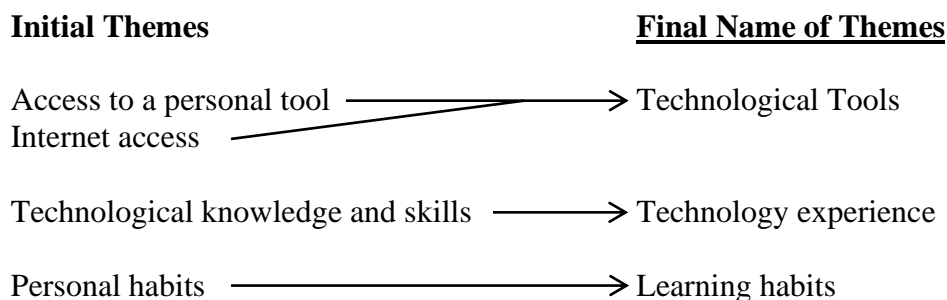
for social media, gaming, instant messaging, text messaging, and emailing.

In the second cycle, we organize the data (perceptions) that have been coded in the initial coding into appropriate themes in accordance with the research questions and then attended to “data displays.” We worked through each transcript coding every segment of text that seemed to be relevant to address our research questions. We did this manually through the hard copies of transcripts using highlighters. The following are behavioral examples of what we did in the second cycle.

**Figure 1**



After the themes were generated, we then proceeded to the phase of reviewing and naming the themes. In this phase, we reviewed all the themes that had been generated in the preceding phase and formulated exactly the final name for each theme to make it easily understandable.



**Trustworthiness**

Reporting the results of the study in a systematic manner may be challenging as it is particularly related to credibility, dependability, transferability, and conformability (Elo et al., 2014, p. 6). Compared to the other three aspects of trustworthiness, credibility is regarded as the most crucial aspect in establishing trustworthiness since it essentially requires the

investigator to link the study's findings to reality to verify the accuracy of the study's findings.

Credibility is based on the truth of the research findings. There are two most common techniques of testing credibility used in qualitative research, namely triangulation and member checking. To ensure the credibility of the study we used participants' confirmation (Merriam & Tisdell, 2015) to allow them to fix errors and challenge what they thought was incorrect. We employed the strategy of member checking (Creswell, 2007) by presenting the interview transcriptions to the participants of this study and eliciting their feedback. The response provided by the research participants revealed that the transcription presented accurately their views.

## **Results**

As aforementioned, the case of this study was factors affecting student engagement in online teaching and learning, taking the Musamus University as the context of the study. One research question guided the study: "What are the factors affecting student engagement in online teaching and learning offered at Musamus University, Indonesia?" The response of the participants to this research question is presented narratively as the following.

### **Technological Tools**

This study found two core issues related to technological tools, namely access to personal computers or smartphones and internet access. Starting with the access to personal computers or smartphones, the findings indicated that many students at Musamus University, Indonesia, were reported to have limited or even no access to digital tools such as computers, laptops, tablets, and smartphones. Surprisingly, all the research participants (100%) communicated this poor condition when they were asked about the factors affecting student engagement in online teaching and learning. The participants offered the following comments:

Participant 1 (#P1): Students who do not have access to personal tools at home such as computers and smartphones are at a disadvantage. They have nothing to do with online teaching and learning offered.

Participant 5 (#P5): Many students do not have access to a personal computer and smartphone. This condition is, of course, very impactful when teaching and learning are carried out online. Many students are absent from online teaching and learning. It's a pity condition, but what else to say...

Participant 3 (#P3): Some of my students reported that they were not able to attend my online teaching and learning simply because they do not have a computer or smartphone at home. During the COVID-19 outbreak, the only thing I can do for disadvantaged students is to make an appointment to teach offline while adhering to the health protocol regulations.

Internet access was the second issue influencing the level of students' engagement in online teaching offered at Musamus University, Indonesia. Most research participants (90%) expressed this when they were asked about the factors affecting student engagement in online teaching and learning. The participants' comments related to the issue of internet access are the following:

Participant 2 (#P2): Many of online students complained that they were not able to attend whole online teaching and learning because of the disrupted internet network.

Participant 8 (#P8): No matter how well we prepare for our online teaching and learning, students will not benefit from it if the internet network is interrupted or suddenly disconnected.

Participant 9 (#P9): One of the most important issues in online teaching and learning is internet connectivity. Many students reported that they could not attend my online teaching and learning because of the frequent disconnection of the internet.

Most participants reported that many students were not able to engage in online teaching due to the lack of personal computer or smartphone ownership and internet access. This is simply to say that students' lack of ownership and access to personal computers, smartphones, and the internet made it difficult for them to engage actively in online teaching and learning. Once the online lecturers were aware of this poor situation, he or she made immediately an appointment with those of disadvantaged students to teach offline while adhering to the health protocol regulations.

### **Technology Experience**

This study found two core issues related to technology experience, namely technological familiarity, and technological skills. Starting with the technological familiarity, the finding indicated that many students at Musamus University, Indonesia, were reported to be unfamiliar with the technological tools. Two research participants out of 10 communicated this when they were asked about the factors affecting student engagement in online teaching and learning. The following are the participants' comments on the issue of students' technological familiarity:

Participant 10 (#P10): Many students reported that they found difficulties with studying in online teaching and learning simply because they are unfamiliar in using technological tools such as computers or smartphone.

Participant 2 (#P2): Students' unfamiliarity with technology makes it difficult for them to engage on time in online teaching and learning. Some students stated that they, sometimes, could only engage when the online teaching and learning has been in progress.

The second issue of technology experience affecting the level of students' engagement in online teaching and learning was students' technological skills. When questioned about the factors affecting student engagement in online teaching and learning at Musamus University, Indonesia, less than half of the research participants (30%) said this. The participants' comments related to the issue of students' technological skills are the following:

Participant 1 (#P1): Engaging in online teaching and learning has become a source of frustration for some students. They were confused when their personal computers or smartphone cannot function properly during the online teaching and learning.

Participant 3 (#P3): Students should have a basic understanding of how to operate technological devices. When online teaching and learning is still in progress, this ability is very essential. Lack of technological skills makes it difficult for students to fully engage in online teaching and learning.

Participant 6 (#P6): Many students reported that they found difficulties with studying in online teaching and learning because of frequent interruptions to both computers and the internet.

Students' technological familiarity and skills are crucial for online teaching and learning. The study revealed that less than a half of participants asserted that many students are not able to fully engage in online teaching and learning because they are unfamiliar with the technology and lack technological skills alike. Simply to say, students' unfamiliarity with the technology and the lack of technological skills made it difficult for them to actively engage in online teaching and learning.

### **Learning Habits**

Data indicated that many students at Musamus University, Indonesia, were reported to have bad learning habits. The following are the participants' comments related to the students' learning habits:

Participant 7 (#P7): Many students have difficulties staying up with class assignment in online teaching and learning. Instead of doing class assignments, students frequently use their computers or smartphone for social media, gaming, instant messaging, text messaging, and emailing.

Participant 4 (#P4): Some of students make personal reasons, such as physical illness and caring for sick parents, for dropping online teaching and learning.

Participant 6 (#P6): Some of students make personal excuses, such as do not have internet pulse, for not completing assignments.



Good learning habits are very essential to students' academic performance as they have a great effect on how students engage in online teaching and learning. The study revealed that more than half (70%) of research participants asserted that students' bad learning habits significantly affect their level of engagement in online teaching and learning offered at Musamus University, Indonesia. Many students make personal reasons and excuses for both dropping online teaching and not completing class assignments.

## Discussion

Online teaching and learning are the process of instructing students using technology. The fast and increasing use of online teaching and learning in higher education was recorded by the National Center for Education Statistics (NCES, 2003) and has initially been considered as a cheaper and more flexible mode for developing countries to expand the number of students who have access to fulltime education and bridge the education gap between rural and urban students. Even though more than 171 million (69 %) of Indonesians have access to internet, with an internet infiltration rate of 63,5 % in 2019 (Harto, 2020), engagement in online teaching and learning remains challenging for many students, especially those who are disadvantaged.

Technology-integrated classes have been shown to have beneficial effects for students, including academic achievement and behavioral improvement (Butzin, 2001). Student engagement is one of the factors determining the quality and retention of online teaching and learning (Mucundanyi, 2019). Our study revealed that the most predictive factors for students' engagement in online teaching and learning offered at Musamus University, Indonesia, was access to personal devices and the internet followed by students' learning habits, while the familiarity in using technology seemed to be the least predictive factor. For online teaching and teaching to be effective, students must have access to a personal computer or smartphone and strong internet connectivity. Law (2021) argued that students with a personal device and an internet connection can actively participate in live-streaming lectures and interactive conversations by forming small groups to investigate issues from diverse angles. Most of our research participants reported that many of Musamus University students do not have access to both personal computers or smartphones and the internet. These disadvantaged students are not able to attend the online teaching and learning offered. The result of this study is in line with UNICEF's (2020) finding that students from disadvantaged communities face more difficulties, as many do not have access to both a computer or smartphone and the internet to attend online teaching and learning.

The second factor for students' engagement in online teaching and learning offered at Musamus University was students' learning habits. Learning habits refer to what students do during the process of learning (Badau, 2018). Learning habits are the heart of academic performance (Tus et al., 2020) as it serves as the tool of learning (Yazdani & Godbole, 2014). Ebele and Olofu (2017) asserted that negative learning habits are critical learning problems among students. Learning habits, simply to say, are how a student learns. Attending courses regularly, taking notes throughout the teaching and learning process, planning, and following an established timetable, staying on top of assignments, and finishing them on time are some of sound learning habits that may lead to better learning outcomes (Siahi & Maiyo, 2015). In contrast, truancy, failing to take notes, learning while listening to music, and failing to complete assigned tasks are some of the undesirable learning habits that can contribute to poor academic performance (Ebele & Olofu, 2017). The results of our study revealed the following: (a) many students make personal reasons for not engaging in online teaching and learning, (b) some students have difficulties staying up with class assignments, and (c) many students make personal excuses for not completing a class assignment. Our findings

demonstrated unequivocally how students' poor learning behaviors affect their preparedness to actively engage in online classes and complete class assignments. The students' poor learning behaviors have previously been discovered by Ahmad's (2018) research finding that most surveyed students spent less time in class, never took notes, did not schedule their learning time, and learned primarily to pass exams.

The third factor affecting students' engagement in online teaching and learning was students' familiarity in using technology. Students in today's higher education environments are expected to be familiar with today's technological innovations (Byungura et al., 2018). The extent to which students use a variety of existing digital tools and web-based platforms to execute various computer-based or smartphone-based activities can be used to measure their level of familiarity in using technology (Kennedy et al., 2008; Ng, 2012). From this viewpoint, students are said to be digitally literate if they have a certain level of knowledge, attitudes, and abilities that allow them to use the internet and related technology (Byungura et al., 2018). Many scholars (Hosein et al., 2010; Jones et al., 2010; Kennedy et al., 2008; Littlejohn & Vojt, 2011; Nagler & Ebner, 2009; Ng, 2012) found that students' familiarity with the technology is highly varied, which is linked to the forms of ownership and accessibility.

Today's classrooms and learning environments are either blended or entirely digital. Students' attitudes toward the utilization of new information, communication, and technology (ICT) tools offered at colleges and universities are strongly affected by their level of familiarity with the existing technology (Kennedy et al., 2008). Students may have different levels of familiarity in using technology devices, such as computers or smartphones, depending on their prior experience with that of technology devices (Byungura et al., 2018). The more experience students have with technology, the more they are familiar with using it to learn. Students engaging in online teaching and learning at Musamus University, Indonesia, have varying levels of technological skill and familiarity. The results of this study indicated that most participants reported that many students are unfamiliar with technology, and as a result, engaging in online teaching and learning has become a source of frustration for some of the students. This result is in line with UNICEF's (2020) findings that those students who lack information and technology (IT) skills suffer more challenges and must rely on peers for assistance.

The problems students faced in online teaching and learning were collected under the headings of technological devices (personal computers or smartphone) ownership and the internet access, students' learning habits, students' technological unfamiliarity, and skills. All these problems hindered students from actively engaging in online teaching and learning offered at Musamus University, Indonesia. Considering the critical role of students' engagement as the precondition for the effectiveness of online teaching and learning, all the interested parties should seriously consider how to improve students' engagement. From this viewpoint, online lecturers should not be the sole source of students' engagement. University leaders, as top administrators, should genuinely consider providing teaching-learning facilities, including computers and internet connection, for students in need.

The empirical findings reported in this academic paper should be interpreted with caution and several limitations should be kept in mind when drawing conclusions. It should be noted that this study has a major limitation that should be addressed in the future studies. This limitation is more related to the method by which data were gathered and stored. The major focus of this study was that the factors affecting student engagement in online teaching and learning offered at Musamus University were examined from the perspective of online lecturers rather than from the perspective of students, who are disproportionately affected by the lecturers' decision to transition from face-to-face classes to online classes. Furthermore, the real-world conditions that students encountered in their local community and family

during the COVID-19 outbreak were not the focus of this study, even though they may have had a significant impact on students' decisions to engage or not engage in online teaching and learning opportunities.

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### Author Note

Basilus Redan Werang (Corresponding Author) is a member of the Faculty of Educational Science, Ganesha University of Education. He obtained his doctoral degree in the field of educational management from the State University of Malang, East Java, Indonesia. He has experience with research methods, including qualitative research methods in education. His research interests are school management, school principal leadership, teacher behavior, and students' academic achievement. He assisted with data collection and analyses, the creation of the original draft, and manuscript editing. Please direct correspondence to [lirang267@yahoo.co.id](mailto:lirang267@yahoo.co.id).

Seli Marlina Radja Leba SMRL Musamus University. She is a faculty member of Teacher Training and Education, Musamus University, Indonesia. She holds a doctoral degree in English Education from the State University of Malang, East Java, Indonesia. She has experience with research methods, including qualitative research methods. She assisted with data collection and manuscript review.

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