Exploring the Impact of the COVID-19 Pandemic on University Students' Learning Life: An Integrated Conceptual Motivational Model for Sustainable and Healthy Online Learning

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Abstract: The COVID-19 pandemic has forced many organizations around the world to make full use of a variety of emerging online communication platform technologies. Universities are among the organizations that have asked students, tutors, and lecturers to use a number of different online communication platforms to ensure the education process remains uninterrupted. However, the COVID-19 pandemic has generated considerable challenges for the global higher education community while using such emerging technologies. This research has two main goals. First, this paper will begin by investigating whether the online learning platforms used by university students during the COVID-19 period have presented any challenges to their learning. Second, the paper will then go on to address proposed solutions by developing a conceptual model to reduce the impact of such challenges. This research uses an exploratory qualitative research approach, supported by literature content analysis techniques. The data set for this study was collected during the first peak of the pandemic period in Malaysia, between the 16th of May 2020 and the 5th of June 2020. We used SPSS to conduct a descriptive analysis and NVivo12 to analyse data collected from 486 students from different universities in Malaysia. These students disclosed various obstacles they encountered when they used IT platform applications for online learning. These obstacles include (a) work and information overload received from instructors, (b) inadaptability and unfamiliarity of the new online learning environment, and (c) personal health challenges related to stress and anxiety. Based on previous relevant research, this study introduced a set of motivational factors and developed a conceptual motivational model for sustainable and healthy online learning.

Keywords: students sustainable wellbeing; COVID-19 pandemic; online learning; stress and integrated motivational model

1. Introduction

In the first half of 2020, people around the world found themselves facing an invisible enemy in the form of COVID-19. This pandemic forced the majority of people to change many of their cultural routines, including daily life routines and practices, ranging from

personal practices to organizational and outdoor or public practices. Many countries have imposed dramatic changes in policies to force compliance to their rules and regulations in an effort to protect their communities from becoming victims of this pandemic and to ensure the continuation of high levels of productivity and performance [1].

One of the most important organizations to deal with the COVID-19 pandemic is the university in its role as a key higher education institution, as it is among the most important service sectors and its students represent the potential future workforce. Some university students have experience and a long history in dealing with online distance learning (ODL) platforms to engage with learning activities, while others do not. Regardless of their experience of e-learning platforms or ability to use these emerging information technologies in their education journey, the COVID-19 pandemic has tested the extent to which both academics and students are prepared to adopt and use these technologies in their online learning activities [2]. Consequently, many university students during the COVID-19 period had no alternative but to deal with advanced online information and communication technologies (ICTs) [3] to accomplish their learning activities and follow up with their instructors in a safe manner in order to ensure social distancing was maintained. It is undeniable that ICT applications enhanced by internet technologies have proven to be powerful tools and have played a significant role in the speedy development of e-learning [4]. Nevertheless, the sudden adoption of these online services during the pandemic may have some negative effects on students' lives, as there are a number of issues that may hamper and demotivate many students during the learning process.

The present paper will begin by reviewing the relevant situation of the COVID-19 outbreak up to this point, then move on to focus on higher education institutions in Malaysia and review their response. It will then go on to explain this paper's methodology and then discuss the results, which will demonstrate how pupils of higher education institutions react and perceive the online learning platforms they have been asked to use. Finally, this research will develop a conceptual model that will motivate students to use these online learning platforms in a healthy, sustainable manner.

2. The Pandemic of COVID-19 and the Reactions toward It

In early 2020, the world was shocked by the sudden and rapid attack of the coronavirus known as COVID-19. It was first detected in December 2019 in Wuhan, China, and has caused an ongoing pandemic [5]. The first case was traced back to 17 November 2019 in Hubei, China [6].

The entire world has been affected, with more than 112,553,318 cases recorded as of 25 February 2021. While almost 63,504,705 of these people have recovered, there have also been almost 2,497,419 fatalities [7].

The World Health Organization (WHO) therefore declared the COVID-19 outbreak to be a global pandemic on the 11th of March 2020. The term "pandemic" has been defined as "an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people" [8].

Subsequently, Malaysia announced its first detected case of COVID-19 on the 25th of January 2020 with a Chinese tourist. On the 4th of February 2020, Malaysia confirmed the first case in a Malaysian citizen, a 41-year-old man infected by COVID-19 [9]. On the 16th of March 2020, the number of positive COVID-19 cases reached 553, and Malaysian Prime Minister Tan Sri Muhyiddin Yassin announced the first Movement Control Order (MCO). This would be in force from 18 March to 31 March 2020 and was intended to reduce the rapid spread of COVID-19 [10,11].

The unexpected orders from many governments around the world to follow lockdown and the different phases of the MCO created anxiety and panic. COVID-19 spread rapidly and created a panic amongst the public that directly affected many businesses and organization systems, including the education system. Subsequently, on the 27th of May 2020, the Higher Education Ministry in Malaysia declared that all teaching and learning activities in all universities and other higher education centres must be conducted online

until the 31st of December 2020, while they would wait to make a decision regarding 2021. Only a few exceptions were allowed, and strict rules were put in place in order to prevent another COVID-19 outbreak [12].

Yet, this decision by the Malaysian Higher Education Ministry still functioning until March 2021 to ensure social and physical distancing is performed during the COVID-19 outbreak. However, a number of challenges and negative experiences can be triggered by the sense of such physical, emotional, and social distance from others. As reported by Philippe et al. (2020) [13], both students and instructors, when applying social and physical distancing, discover unexpected facts about each other, which might lead to an unexpected and unsatisfactory relationship. In particular, students can suddenly recognize the limits and limitations of their lecturers, particularly with regard to the use of technologies and addressing problems with time management. This could deteriorate social belonging and learning process and undermine students' sustainable learning and wellbeing [13].

Online Learning: Necessity and Challenges

The Malaysian Education Ministry instructed all universities to allow students to return home and inform them that all teaching and learning activities will be carried out online until further notice. As a result, the only safe and practical way to conduct online learning and teaching activities is via online distance learning (ODL), known as e-learning [14]. Online education is the best method for both students and educators, especially during the long MCO phases [15]. Universities and other public and private higher education institutions had to consider how they could continue to supply a high-quality education service while reducing contact, and online learning was the only practical way. However, several important factors affecting the implementation of online learning technologies needed to be considered by the managers of these institutions, such as internet speed, coverage, and time constraints faced by both educators and students [2]. In addition, students will have to adjust to the new normal as the COVID-19 pandemic affects their social lives and health.

The education system is comprised of many complex elements, such as instructors, students, syllabi, resources, and facilities, that must be carefully developed and designed to promote a fruitful education outcome.

In addition, the process of knowledge construction itself needs to be performed through model integration. Some of these models, as reported by Biasutti [16], are cognitive constructivism that relies more on personal abilities and social constructivism that relies more on interactions and motivations from the surrounding environment. Cognitive constructivism considers computer-supported collaborative learning (CSCL) environments to be tools for promoting learning by provoking individual knowledge and subsequently reorganizing that knowledge during the process of social interaction. Meanwhile, social constructivism focuses on intersubjectivity and co-construction of knowledge rather than on the individual dimension of knowledge-building [16]. Therefore, our goal in this study was also to support and provide the concept of an integrated motivational model for sustainable and healthy online learning.

It is not easy to adopt or adapt to online learning in response to a sudden pandemic such as COVID-19 without encountering many problems and challenges. Researchers have recently reported that academic staff and students are both facing multiple obstacles in conducting ODL using ICT platforms [17,18]. These obstacles may include issues such as unfamiliarity with the information technology platforms used; limited internet access; insufficient experience in dealing with online learning platforms in terms of student participation, interactivity, and engagement; lack of a process to assess online learning outcomes; and lack of experience in developing online course content or transforming courses from offline to online modes. Other challenges are relevant to university culture, such as low levels of positive engagement during online classes by students, and socially depressed learners [18]. In this regard, the following sections of this study will highlight the online learning technologies that have emerged during the COVID-19 pandemic and

the impact of these technologies. It will also examine and analyse the COVID-19 outbreak from the perspective of these students.

3. Research Questions

This qualitative exploratory research aimed to answer the following four questions:

RQ1: What are the challenges and difficulties facing students during the COVID-19 lockdown?

RQ2: How are students dealing with these challenges and difficulties?

RQ3: What stressors are affecting students during the COVID-19 lockdown?

RQ4: What factors might help students to overcome the challenges and difficulties they face during the pandemic?

4. Research Method

4.1. Data Collection and Participant Inclusion Criteria

This research adopted a qualitative exploratory approach to analyse collected textual data and used a simple quantitative approach to generate supportive descriptive analysis. The self-administered online questionnaire used in this study was designed using a Google form. Due to social distancing rules and restrictions imposed during the COVID-19 pandemic, we decided online questionnaires were the best way to collect data. The online self-administered questionnaire was designed to include three main parts: demographic information; closed questions that measure the impact of COVID-19 on students' social lives, health, and personal practices; and (what and how) open-ended questions. The third part gave respondents enough writing space to express their thoughts and reveal their own experiences on the subject.

The data were collected using snowballing and purposive sampling, a technique in which the researcher initially samples a small group of people relevant to the research objectives, who are then asked to propose another related set of respondents and distribute questionnaires to them. All suggested respondents must have experience of using e-learning platforms to serve the research objective; if any of the respondents do not practice learning using online platforms, they are asked not to answer the questionnaire. These participants then suggest others who have online learning experience, and so on [19]. Several requests and reminders for data distribution were made using WhatsApp and Facebook, and calls were made to keep collecting data. A total of 486 respondents took part, a number which, the researchers believe, is sufficient for the qualitative analysis needed to answer the research questions and to generate reasonable descriptive analysis. As in qualitative research, sample sizes should not be large as this will prevent the extraction of enough rich data. At the same time, if a sample is too small, it will be hard to reach data saturation [20].

4.2. Data Analysis Process

This research implemented the general concept of qualitative content analysis, which relies more on a subjective interpretation of the text content to perform the systematic classification process of codifying and identifying themes and patterns [21]. After following the thematic analysis steps inspired by Creswell and Poth (2016) [22], this study conducted a thematic analysis. Firstly, we reorganized and classified the collected data. Secondly, the information collected through the database was read again. Thirdly, we developed a list of significant statements from the collected answers and other relevant data sources.

Fourthly, using the NVivo12 software we reduced the data into themes through a process of coding. This involved merging the transcript data into small categories of information, then looking for evidence of the code from various databases being used in a study. Lastly, the codes were abridged, the analysed data were represented in figures, tables, or a discussion, and an interpretation was formed. Regardless of the size of the database

used in this qualitative research, we followed Creswell's recommended thematic data analysis technique and did not exceed the development of 25–30 categories of information about the phenomena. We then reduced and combined them into a few themes that we used to write a research narrative and synthesized the findings, as discussed in the following subsections.

5. Results and Discussion

5.1. Participants' Demographic Information

The demographic information collected from respondents to the questionnaire used in this study can be seen in Table 1 below. Of the participants, 52.5% were male and 47.5% were female, while 48.7% of all participants were between 21 and 23 years, which makes up the largest group. In contrast, the smallest percentage, 10.5%, were 28 years and above. About 79% of the participants had a bachelor's degree, which represents the largest number of participants, while fewer participants possessed other levels of education. Participants from public universities make up 92% of the sample, compared to 8% of participants from private universities. As this study was conducted in Malaysia, the table shows that 76% of participants were Malaysian while 24% were from other countries.

Table 1. Demographics of the respondents.

Demographics	Description	Frequency	Percentage (%)
Gender	Male	255	52.5
	Female	231	47.5
Age Group	18–20 Years	114	23.5
	21–23 Years	237	48.7
	24–27 Years	84	17.3
	28-older	51	10.5
Academic Qualification	Diploma	35	7.2
	Bachelor	384	79
	Master	30	6.2
	Doctorate	37	7.6
Type of University	Public	447	92
	Private	39	8
Nationality	Malaysian	369	76
	Non-Malaysian	117	24

5.2. Students' Perceptions on the Challenges and Problems They Face during COVID-19 Pandemic

During the first and second phases of the Movement Control Order (MCO) in Malaysia (initially March 18–25 then extended to April 10–28), the majority of Malaysian universities began to conduct all classes entirely through online learning platforms. The Ministry of Higher Education (MOHE) then declared on May 27 that all university courses must be conducted fully online, with no face-to-face teaching allowed until December 31, 2020 [10]. At the same time, many Malaysian press and news agencies and some members of education institutions began reporting student complaints about the anxieties and challenges they experienced when learning online [23,24]. Responding to these complaints and reports, the authors of this study decided to explore the challenges and problems encountered by university students during the COVID-19 pandemic more deeply by collecting and analysing data from students about the impact of these emerging online learning technologies. A number of themes were developed to uncover these challenges and problems, and these are discussed and explained in the following subsections.

5.2.1. Theme (I): Challenges Relevant to Online Teaching and Technical Issues

This section discusses the results which relate to technical problems and online learning challenges. This section has three main subthemes, which are summarized in Figure 1 below:

(a) Information and work overload;
(b) Difficulty adapting and unfamiliarity with the new online learning environment;
(c) Personal health challenges related to stress and anxiety problems.
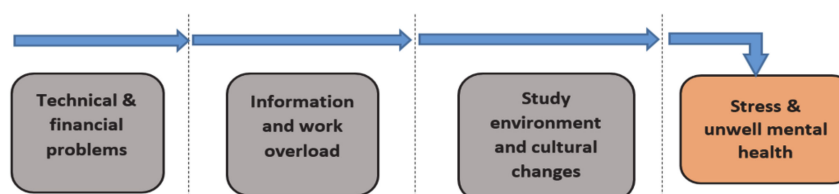
Figure 1. Summary of challenges due to the COVID-19 pandemic on university students.

The discussion for this theme and its subthemes was supported with evidence extracted from the results of collected data and justified with relevant literature.

(a) Information and work overload

As Figure 2A demonstrates, more than two-thirds of university students (69.5%) who took part in this research feel overloaded when following up with their online courses, while (30.5%) of the students declared no feelings of overload feeling. There could be many reasons for this. Firstly, previous research has reported that instructors have exhibited excessive concern for finishing the syllabus on time, which is the result of fear and panic among educators regarding how to complete the program of study [2].
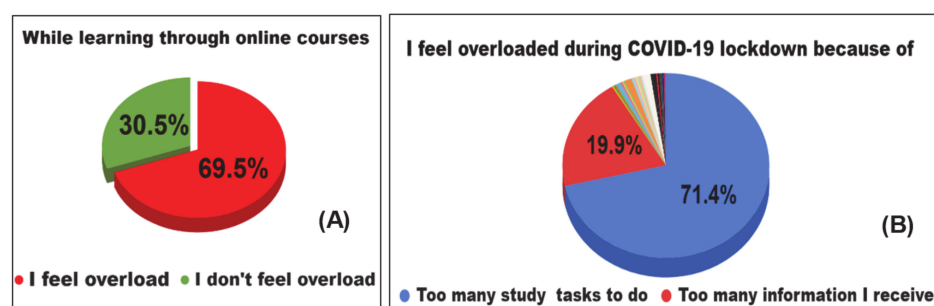
Figure 2. Students overload feeling and causes during online courses. **A:** Students' overload feeling; **B**: Causes of information overload during online courses.

Secondly, the design of teaching plans remains unchanged even though COVID-19 has forced universities to change the way they teach and communicate. Some university instructors and students have little experience or training in using, assessing, and managing online distance education. This is consistent with previous research which indicated that the sudden emergence of COVID-19 means some instructors and students are facing extra challenges because of a lack of online teaching and learning experience [25].

Thirdly, having to deal with multiple online learning platforms could be one reason for the information overload causing work overload and increasing stress levels among students. As shown in Figure 2B, when students were asked about the main sources of overload they encounter when dealing with online courses, 71.4% referred to having too many online tasks, while almost 20% considered receiving too much information from the online learning platforms as another source of overload.

(b) Increased Time Spent Online

Comparing Figures 3 and 4 and highlighting just the major percentage values, it is apparent that the number of hours students spent in front of their computers before COVID-19 was less than 3 h per day for almost 48% of students and less than 5 h for almost 28% of students. In summary, the number of hours students spent in front of their computers before COVID-19 on average did not exceed 5 h. On the other hand, the number of hours students spent in front of their computers during the COVID-19 lockdown has undergone a remarkable incremental change. For example, as shown in Figure 4, 23.7%, 20.4%, and 18.5% of students reported they now spend 6, 8, and 10 h in front of their computers, respectively.
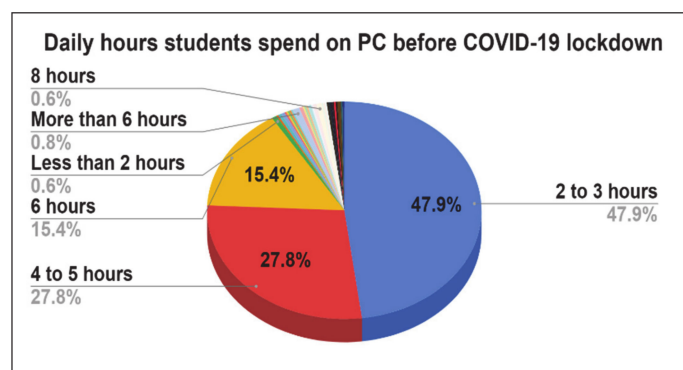
Figure 3. Number of hours students spent using a computer before the COVID-19 pandemic.
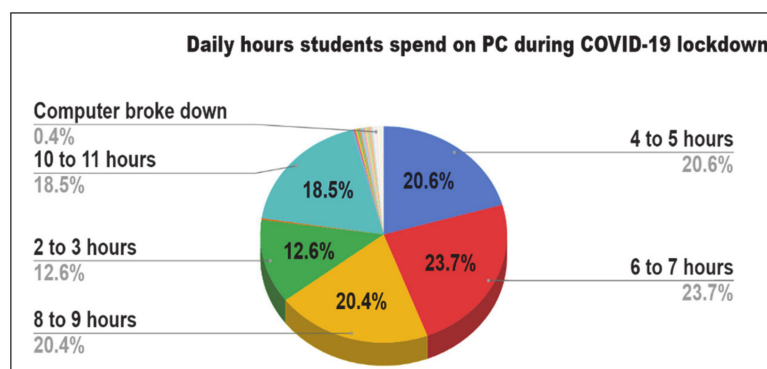
Figure 4. Number of hours students spent using a computer during the COVID-19 pandemic.

Although the number of incremental hours that students spend with their computers or mobile devices during COVID-19 looks to be a normal reaction to fulfilling online learning tasks, it has had a number of critical consequences for students. This includes the increased costs associated with buying more internet connection time, buying the hardware needed for online courses, increasing their level of focus on subjects, time management, and sacrificing some of the work inside the home which could create extra work for other family members.

In addition, students are required to deal with multiple online learning tasks that might come from different multiple online learning platforms, which may lead to sleeplessness. All these problems hamper students' academic performance and could create stress. This could have a serious negative impact on their mental health and personal wellbeing, as the next section explains.

5.2.2. Theme (II) Challenges Relevant to Mental and Health Issues

The data collected from students shown in Figure 5 reveal that 67% of students declared feeling stress during the COVID-19 pandemic, while about 28% declared no feeling of stress. The number of online tasks occupying students' minds and the workload

they faced due to the increased hours spent on online learning platforms could be one of the major reasons for stress among students. To gain a clearer vision of the causes of student stress during COVID-19, this study asked participants to list and describe the reasons behind their feelings of stress.
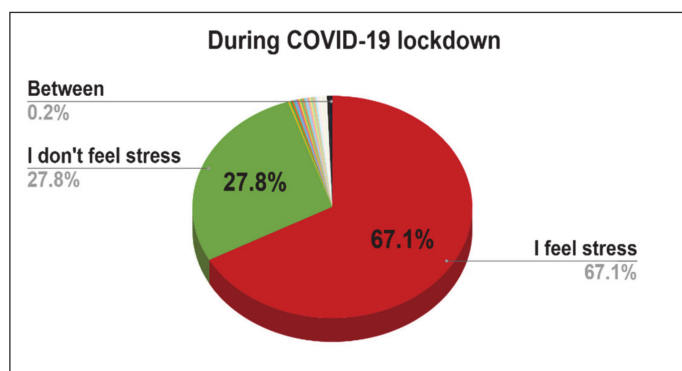
Figure 5. Students who felt stress during COVID-19.

The problem is stress is one of the oldest and most important phenomena discussed by scholars today, and it has become of greater concern during the pandemic due to the strong links between stress and the COVID-19 outbreak. This is because the pandemic has led to widespread concerns regarding the increase in anxiety and stress among individuals all over the world [26].

This study is concerned with exploring students' views about their feelings of stress during the COVID-19 period and the reasons for their stress. This concern comes from the fact that poor health is sometimes strongly associated with greater stress and the psychological impact caused by high levels of stress among individuals [27].

As Figure 6 shows, students using different online learning platforms during COVID-19 are experiencing five major sources of stress: (1) more than 62% of respondents report pressure from having too many online tasks included in these platforms; (2) limited and weak internet connection as stated by more than 51% of the respondents; (3) more than 51% of students reported unfamiliarity with the study environment and "new normal" study practices in their home; (4) 37.3% of students reported stress due to inadequate resources relevant to subjects they are learning; and (5) 20.4% of students worried they may become victims of COVID-19.
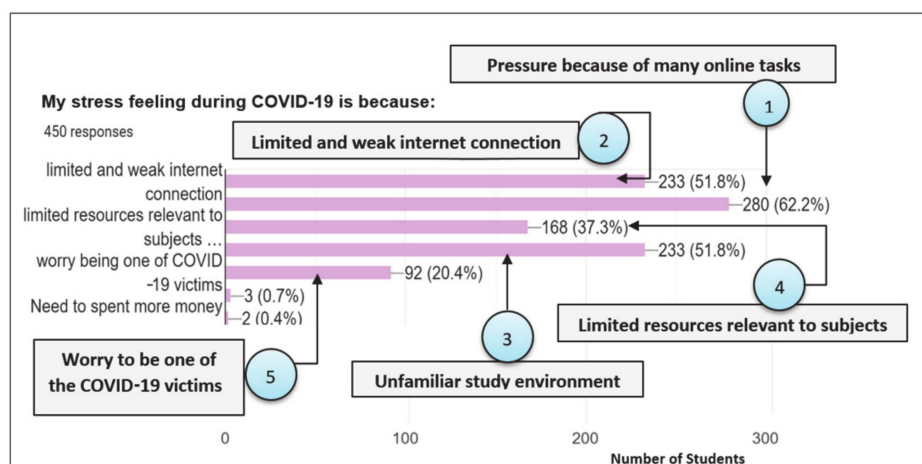
Figure 6. Causes of stress among university students during the COVID-19 pandemic. 1–5 sources of stress are explained in the text.

6. Some Consequences of Fully Online Learning

Figure 7A–C below illustrate some of the consequences felt by university students due to the COVID-19 pandemic. Figure 7A shows that only about 30% of students declared that they never pictured future misfortune while studying online during the COVID-19 period. Other percentages of students declared picturing future misfortune but in different ranges, rated as sometimes 57%, rarely 2%, and always 4.6%. Other consequences students faced when studying online, as shown in Figure 7B, include their inability to control stress and anxiety, with only about 27% of students declaring that they were able to control their stress while studying online. Other percentages of the students declared their feeling of inability but in different ranges, rated as sometimes 62.1%, almost every day 7.2%, and always 3.5%. As a result of the previous two consequential problems, students might encounter feelings of anger and losing their temper easily, as reported in Figure 7C. Here, only about 13.4% of students declared that they never get angry and lose their temper while studying online. Other percentages of students reported getting angry and losing their temper but in different ranges, rated as sometimes 30.2%, rarely 29.8%, and always 6.4%.
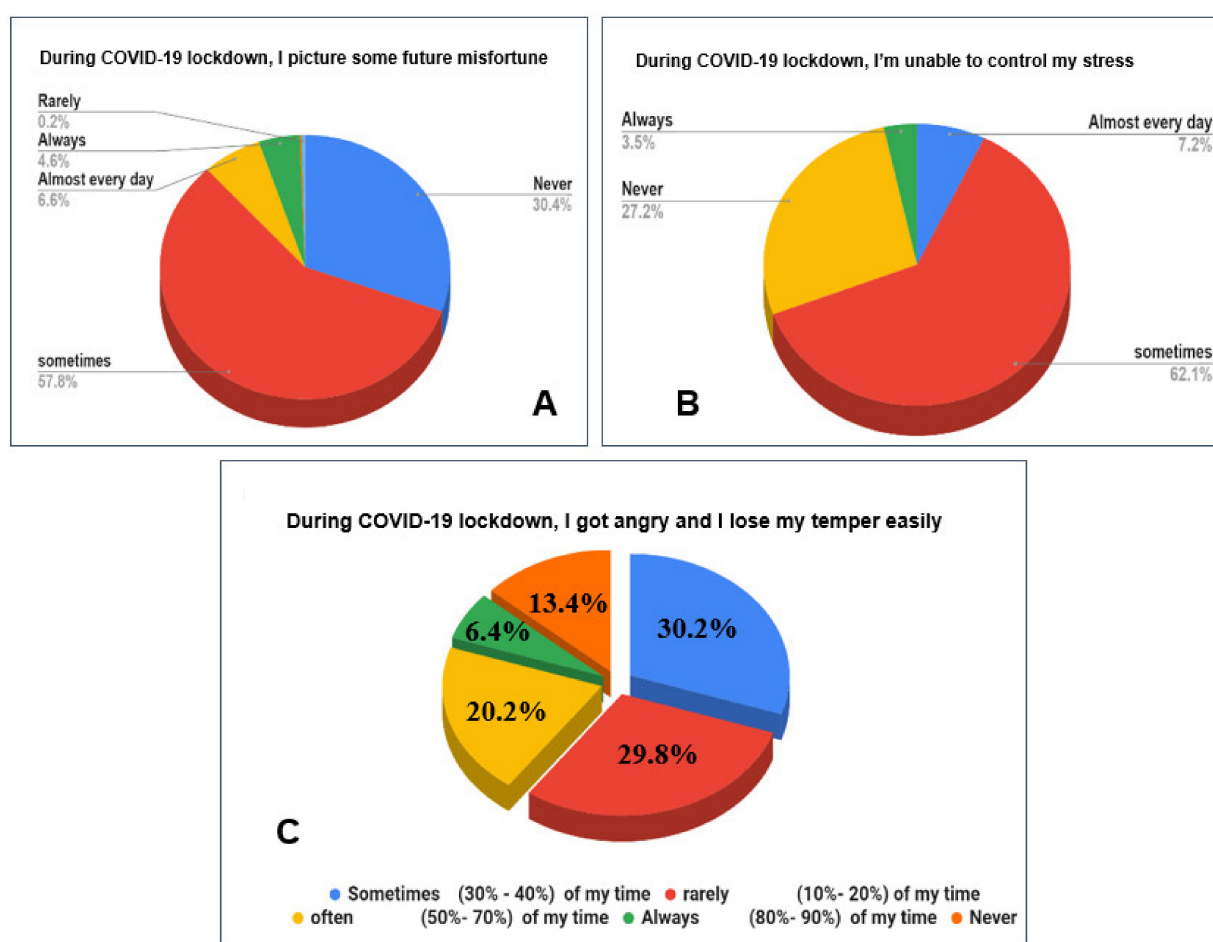
Figure 7. Some consequences of the COVID-19 pandemic on university students. **A**: Students' misfortune feeling; **B**: Level of students' stress control; **C**: Students' feeling of anger and losing temper.

7. Status and Sources of Student Motivation during COVID-19

The survey results suggest that students could be motivated in three ways. First, self-motivation. By being autonomous and relying on their personal skills, students can keep better control of themselves. As shown in Figure 8A, 72.4% declared they had the ability to manage and control their stress. On the other hand, 27.6% of students were not

fully self-motivated and had sought help and advice from others to manage and control their stress during the COVID-19 period.
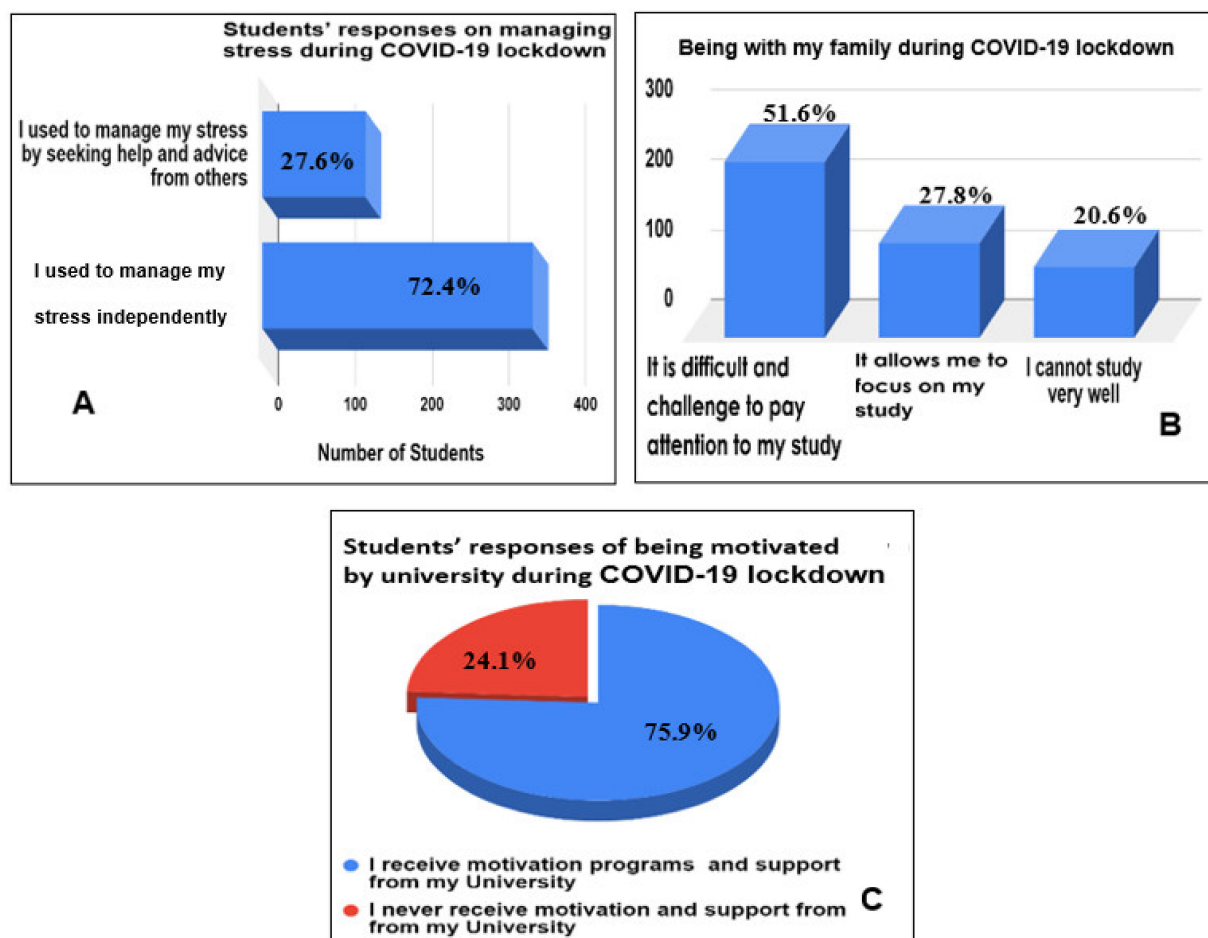
Figure 8. Some consequences of the COVID-19 pandemic on university students. **A**: Ways students manage stress, **B**: Students' feedback of being with family during lockdown; **C**: level of University support and motivation.

The second source of motivation to help students to overcome the challenges posed by online learning is family. Surprisingly, as shown in Figure 8B, only 27.8% of students declared that being with their families during COVID-19 allowed them to focus on their studies. Meanwhile, 51.6% and 20.6% of students respectively declared that staying at home with their family caused difficulties and challenges to focus on their online studies. The third source of motivation, as the authors of this research anticipated, is university support programs. As shown in Figure 8C, 75.9% of students declared that their university organized supportive and motivational sessions for them during the COVID-19 pandemic. However, 24.1% declared that they did not receive any support and motivation sessions during this time.

8. Research Conceptual Model Development

The authors developed an integrated motivational conceptual model based on relevant data from previous studies to propose a possible solution, which allows us to address the second and fourth research goals. It will also provide a clear map for universities to overcome such challenges and hurdles faced by students and to ensure students' sustainable wellbeing.

As shown in Figure 9, the proposed conceptual model comprises three integrated contexts, which are personal factors, technical factors, and socio-environmental factors. Each

of these contexts includes three main variables that are believed to contribute significantly to students' sustainable wellbeing.
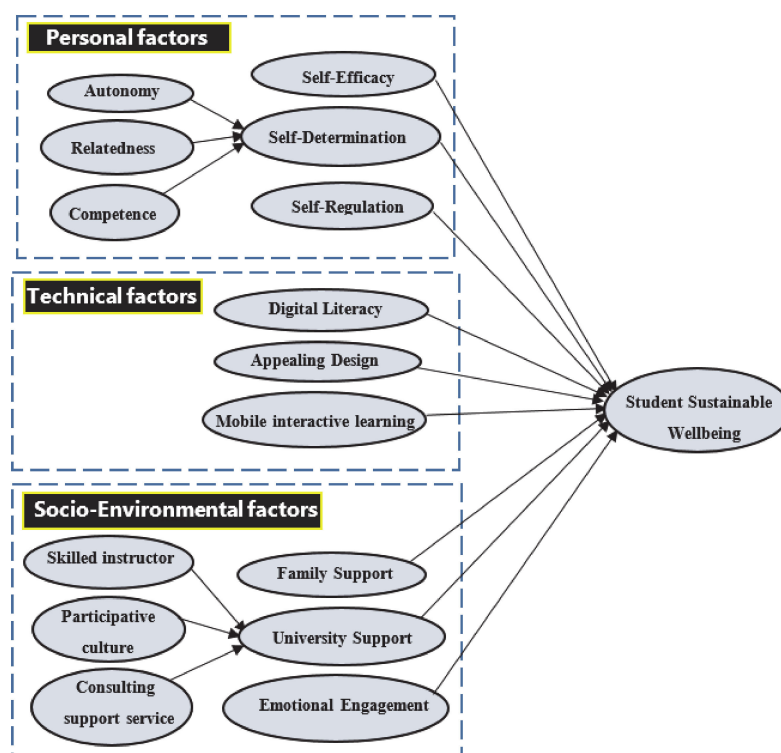
Figure 9. Integrated conceptual motivational model.

8.1. Students' Sustainable Wellbeing

Student wellbeing has been defined as "a positive emotional state that is the result of harmony between the sum of specific context factors on the one hand and the personal needs and expectations towards the school on the other hand" by a number of researchers [28,29]. The wellbeing and mental health of students has become an issue of great concern to universities in recent decades [30]. Previous studies considered student wellbeing and mental health to be a significant output factor in educational practice next to cognitive output [31–34].

We believe as well that studying student wellbeing, mental health, and motivation has become more necessary in the time of the current severe pandemic due to its huge impact on every aspect of life, including academic life. The COVID-19 pandemic forced many university students to enter unfamiliar environments, as they have to fully adopt online learning and adapt to studying from home through virtual online platforms. However, when students encounter an unfamiliar environment, it prompts stress and poor mental wellbeing, and consequently, some students find it hard to adapt to the new environment. This can have a negative effect on their academic achievement [35–38]. Universities should pay more attention to the mental health and wellbeing of their students, especially due to the links between mental ill-health and poor engagement, and the negative implications for academic performance [32,39,40].

This study thus attempts to reintroduce an integrated conceptual model based on the factors that influence students' sustainable wellbeing. It is based on a number of well-known theories, such as self-determination theory and other theoretical concepts from relevant literature reviews. Knowing which factors foster motivation in students will help us to guarantee better student wellbeing. In line with this, students who are highly motivated usually score higher on student wellbeing [34].

We conclude this subsection by distinguishing between sustainable and current wellbeing as reported by certain researchers [34,41]. Sustainable wellbeing refers to general

self-esteem and is concerned with the individual's own capabilities, self-image, and the academic concept of self as well as the student's social and emotional self-image. Current wellbeing, on the other hand, refers to the instant experience of feeling good at the institute, satisfaction with aspects of a situation, and institution-related feelings of various psychological factors induced by the institute's situation.

8.2. Personal Factors

8.2.1. Self-Determination

As reported by previous researchers [42], self-determination comprises three distinct psychological and personal needs: autonomy, competence, and relatedness. Fulfilling these three needs enhances mental health and self-motivation; in contrast, when these elements are unsatisfied, an individual's motivation and wellbeing are weakened. Self-determination theory with its subfactors, therefore, needs to be considered when discussing improving the mental health and self-motivation of students in the domains of education and online learning.

As reported in previous research [43], autonomy denotes an individual's sense that enables them to control and practice their freedom of choice to achieve their work independently in whatever way they see best. Relatedness denotes an individual's sense of being connected, of being linked to a community, and of sharing that community's goals. Competence denotes an individual's sense of possessing the required knowledge and skills to successfully accomplish a given task. Scholars in the field of education sustainability emphasize that teachers and students should meet these three needs to be intrinsically motivated and to sustain their own personal growth and wellbeing.

8.2.2. Self-Efficacy

Previous studies have shown that self-efficacy has a significant impact on student motivation, cognition, and learning performance [39,40,44,45]. Self-efficacy refers to the ability of individuals to accomplish a task with confidence. An individual's positive judgement of their performance appears to be essential in the development of self-efficacy [46]. Student self-efficacy represents a key factor in terms of how they advance their knowledge and ability to manage their online learning and control any problematic consequences they encounter [47].

Students should therefore be equipped with the necessary skills and knowledge about the online tools and platforms they will use when shifting from face-to-face learning to an online environment. [47] However, from a philosophical perspective, we must distinguish between competence and self-efficacy. As reported by Bandura (1995), competence is assumed to be associated with self-efficacy [48]. In this regard, individuals who perform ineffectively do not do so due to a lack of skills or knowledge but because they lack the self-efficacy to practice these skills and knowledge effectively [46,47]. In this subsection, we concluded that student's self-efficacy is an essential contributor to their sustainable wellbeing, as reported in previous studies which deemed self-efficacy as significant for academic success [49]. Moreover, self-efficacy contributes to student wellbeing and the quality of their academic performance [50]. Self-efficacy plays an important role in helping students to overcome the challenges they face during their education journey [51]. University students must not only learn how to plan learning activities, but they should also acquire the knowledge and skills needed to manage their negative emotions during different stages of the learning process if they are to achieve their academic goals [51,52].

8.2.3. Self-Regulation

As reported in previous studies [53,54], self-regulated learning has been defined as "performing educational activities oneself, taking over educational tasks from teachers, educating oneself". In addition, some other research emphasized that students need to be motivated to acquire and use self-regulation to allocate sufficient cognitive resources to accomplish learning tasks [55]. Students who regulate their learning are thus able to

coordinate and manage reasonable task-related goals, take responsibility for their learning, and maintain self-motivation [56]. Many recent studies have found that self-regulation has strong links and positive effects on students' self-help, motivation, and wellbeing [57–59].

8.3. Technical Factors

8.3.1. Digital Literacy

It is well known that during the COVID-19 pandemic the majority of educational institutions are relying heavily on the use of online learning platforms, which is very challenging for computer-illiterate learners. Not all learners have the necessary knowledge, skills, and resources needed to keep themselves competent in the use of online learning platforms [60]. Digital literacy refers to an individual's ability to understand and use information in several formats, paying more attention to critical thinking when communicating using technology skills [61]. As reported by other studies [61,62], there is a need to develop students' digital literacy skills so that they can communicate and express their ideas efficiently using different online platforms. In addition, one way to train students in digital literacy is to encourage the adoption of digital storytelling, because it motivates learning through the creation of personal stories [63–65]. Many of the latest studies emphasize the importance of digital literacy and identify strong links and positive effects for student motivation and wellbeing [66–68].

8.3.2. Appealing Design for Online Learning Content

As reported by previous research [56], and supported by several studies, positive emotional designs for online learning content significantly increase student motivation levels and facilitate learning [56,69–71]. The positive emotional appeal helps to create a more encouraging environment for online learning content [56]. However, such facts need to be examined empirically in a different study context. Some previous research indicates that students are not interested in e-learning because it is less enjoyable than learning in a physical classroom [72,73]. Many scholars have suggested that there is a need to focus on planning a sustained and attractively designed online curriculum [74,75]. Previous studies demonstrated that if the appearance of the online content annoyed students before learning began, the learning process could be negatively impacted. It is therefore important to gain student attention at the very beginning of the learning process [76,77].

For example, an emotional design was found to be more fun as it prompts intrinsic motivation among students to learn [56]. Earlier studies thus encourage the use of emotionally appealing designs in learning [73,74,78]. However, these results need to be re-examined in the contexts of both undergraduate and postgraduate students, because they suggest that an emotional design may not benefit more advanced learners.

8.3.3. Mobile Interactive Learning

University students are nowadays more reliant on faster and easier ways to communicate with their instructors and perform their learning tasks interactively, particularly during the COVID-19 pandemic. Mobile interactive learning applications could thus play a role in reducing cognitive anxiety and improve student wellbeing [79]. In line with this, previous researchers [80] reported that teachers observed that students had higher motivation levels when learning with mobile devices. However, this presumption needs to be empirically examined through different levels of student responses.

8.4. Socio-Environmental Factors

8.4.1. Family Support

Family support, especially during an unexpected crisis, plays a major role in every individual's life. Family support has been even more important during the COVID-19 pandemic in assisting students to be more resilient during online learning. However, the presence of family could act as a double-edged sword in the new online learning environment. On one hand, some families could help students to adapt to and adopt the

online learning environment by motivating them and increasing their wellbeing, while on the other hand, family could also increase stress and anxiety if they are not supportive [81].

Unfortunately, it was found that family support was overlooked as a predictor of e-learning choice, even though it has been found to have a significant impact on students' continuous intention and motivation to participate in the online learning process [82]. Such neglect may not necessarily be from the research side, as it could be from the family itself. This is because a student's family might be unaware of the role they should play in motivating the student during the online learning process and the major role that they could play in increasing student wellbeing. The evidence from Figure 8B reveals that 51.6% and 20.6% of students declared that staying at home with their family caused difficulties and challenges when trying to focus on their online studies and that they studied poorly at home, respectively. The role of family support should therefore be examined to investigate this factor.

8.4.2. University Support

Universities are organizations in the educational sector that play a significant role in supporting and enhancing student capabilities. This is achieved through well-trained instructors, who challenge students intellectually by enabling them to develop their teamwork, communication, and problem-solving skills. These learning experiences will be guaranteed only when universities have professionally designed courses, well-trained instructors, and curriculum renewal [78].

In this regard, university support comprises three subfactors that are believed to play significant roles in motivating university students to overcome challenges when dealing with online learning during and after COVID-19. Firstly, the rapid development of e-learning courses means student support services have concentrated mainly on executing educational technology to convey academic content. However, enhancing and supporting the online learning experience technically still requires greater attention. Universities should therefore pay more attention to the provision of student support services if they are to ensure the success of distance education programs. Support services represent services other than the coursework condensed by universities to online students/learners to facilitate and motivate their success and wellbeing [83]. Some students may have trouble using online platforms due to insufficient technical knowledge in the use of devices [60]. Technical support from their university administration will thus motivate students to manage technological stresses and develop full readiness for online learning [84].

The second subfactor is student participation culture. Previous studies found a noticeable difference in online class enjoyment when their classmates participated in audio and video discussions [85,86]. Participation in online classes prompts the feeling of a classroom environment. Students are motivated by their instructors when using a video camera; looking at the instructor explaining the topics assisted in their ability to focus.

Thirdly, skilled supportive instructors are the final subfactor. As reported by Chiu and Chai (2020) [43], university leaders should consider the instructor's perspective, allowing them to better plan and motivating them to reduce unnecessary tasks that cause stress to both students and lecturers themselves. Previous studies reported that skilled supportive instructors and leaders are vital to cultivating motivation and self-efficacy among students [47,87]. Doing so will establish online learning environments that support active learning and student readiness for online learning [88–90].

8.4.3. Emotional Engagement

Emotional engagement is an essential element of the online learning process that compensates for the absence of face-to-face engagement between students and instructors. As Chiu et al. (2020) reported, the motivation assumption includes both positive and negative emotions that facilitate learning via fostering learner motivation [56]. Emotional engagement can thus increase both intrinsic motivation [69,91] and extrinsic motivation [92], leading to better cognitive processing and learning [93,94]. Instructors should provide

positive emotional content at the beginning of the lesson to engage students and attract them since such attraction leads to higher motivation levels for further learning [77]. Additional findings reported by Chiu et al. (2020) indicate that using an emotionally engaging design plays an effective role in facilitating lower-order thinking skills among students, such as ease of remembering [56]. We thus believe that emotional engagement performed through well-designed online learning helps to increase student motivation to learn while reducing stress.

9. Conclusions

This exploratory study was conducted to gain a deeper understanding of the impact of the COVID-19 pandemic on the academic lives and personal health of university students from their own perspective. Furthermore, this study proposed a motivational conceptual model as a suggested solution to the difficulties faced by students. After collecting and analysing more than 480 data sets from different student levels from more than 15 Malaysian public and private universities, we found that students faced a variety of serious challenges and problems during the COVID-19 pandemic.

We found that these problems could be split into three main types in response to research questions (RQ1 and RQ3) about the challenges and stressors facing students during the COVID-19 lockdown. To begin with, we found that among students, a number of elements may lead to mental health problems and cause anxiety and stress. These elements included a lack of support on coping with the changes to their learning under COVID-19; having to spend too much time using a PC; and being given excessive quantities of work to complete, leaving them unable to manage. In addition, elements such as a lack of understanding from family members can lead to problems.

The next issue was responding to the second research question (RQ2) on how students deal with these challenges and difficulties. Students declared that there are three sources of motivation to overcome such challenges. First, students can keep better control of themselves by being autonomous and relying on their personal skills. The second point to overcome these challenges was through family motivation and support, and the third source of motivation, as the authors of this research anticipated, was university support programs. The next related set of issues we identified related to technology. Our data suggested that universities tend to underestimate the importance of providing training and infrastructure, which can have a significant impact. In addition, issues with connection speeds sometimes made online learning difficult. Finally, issues related to education included problems such as a lack of guidance for both pupils and teachers in the use of relevant computer software and out-of-date teaching plans.

If we are to prevent COVID-19 from damaging the education of the next generation and ensure that students have the best physical and mental health possible, universities must find ways to deal with all these problems. Therefore, responding to the fourth research question (RQ4) in order to help universities accomplish this goal, we developed a conceptual model that we believe could support students as they deal with the challenges imposed by the move to fully online learning. This conceptual model, we believe, could help drive students, teachers, and universities all around the world to improve their online learning in a healthy and sustainable fashion. Yet, additional empirical research is needed to test and confirm this conceptual model.

10. Educational Implications

First, instructors in the university should motivate students to develop their self-confidence and think creatively about any problem they come across when they deal with online learning platforms during the COVID-19 lockdown. Second, university resource planning people are advised to focus more on the quality of the online learning platform interface, in which educational software should also stress the function of interactivity, ease of use, and students' enjoyment for completing learning tasks with less stress. Third, to ensure a better quality of learning content, universities should advise and assist teachers in

updating and redesigning their teaching plans according to the new norm encountered by students and teachers during the COVID-19 pandemic. Fourth, universities are advised to remind students' families of their important role to assist students in getting a better learning environment when they use online learning platforms during the COVID-19 pandemic. Fifth, teaching techniques and assessments of learning outcomes should be adapted to help to reduce online tasks provided to students in order to decrease the level of stress among students and increase the level of sustainable and healthy online learning during the COVID-19 pandemic.

11. Study Limitations and Recommendations for Further Studies

Students face challenges and problems due to transferring them to fully online learning as described in this study which represents an aggravated and panic phenomenon in which no single research can cover all its aspects in only one particular context. Although this study provided a substantial contribution through research results and proposed a conceptual motivational model to ensure that university students have sustainable and healthy online learning, some limitations could open up several possibilities for further research. First, this study was performed in a limited population, which was taken from a few universities in Malaysia. In a wider range of populations, further research may investigate the phenomenon using different techniques, institutions, and other countries. Second, up-to-date research on the effect of the COVID-19 pandemic on the learning lives of university students was enriched in terms of causes and some negative consequences, but further motivating frameworks also need to be developed as a response to these causes and negative consequences in the field of higher education institutions. Third, the conceptual model that was introduced in this research proposed three integrated contexts, which are personal factors, technical factors, and socio-environmental factors. Each of these contexts in this model is still conceptual and needs to be empirically measured. Therefore, in future studies for further confirmatory findings, each context in this proposed model could be empirically tested. Fourth, it would be important to consider the impact of the COVID-19 pandemic more precisely on the creative thinking of university students as a new extension of this research work.

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