Beyond Conventional Classroom Learning: Linking Emotions and Self-Efficacy to Academic Achievement and Satisfaction with Online Learning during the COVID-19 Pandemic

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Abstract

This study examined the impact of online learning on students' mental well-being, distress, anxiety, academic achievement and satisfaction with online learning. A total of 915 undergraduates in Malaysia and Indonesia responded to the Google Classroom Evaluation survey. Results indicated that students' mental well-being was negatively impacted by financial difficulties, concern that their physical health may suffer due to exposure to Covid-19, and a lack of motivation for online learning. Analysis of emotional factors revealed distress and feelings of nervousness when classes were conducted online. Overall, participants were satisfied with the online learning experience, as was evident from the academic achievement in courses conducted with above average CGPA. Multiple regression analysis indicated that distress, anxiety and self-efficacy in online learning were significant predictors of satisfaction with online learning, with self-efficacy in online learning making the largest contribution. However, academic achievement was not a significant predictor of satisfaction with online learning. It is recommended that higher learning institutions provide counselling, behavioral adaptations and study techniques to support students in managing their distress and anxiety surrounding online learning, which is anticipated to continue throughout 2021 due to the increase in virus cases.

Keywords: Mental well-being, Distress, Anxiety, Academic achievement, Self-efficacy in online learning, Satisfaction with online learning.

Contents

Contribution of this paper to the literature
This study contributes to existing literature by confirming that distress, anxiety and self-efficacy in online learning were significant predictors of satisfaction with online learning of university students in Malaysia and Indonesia. Students' mental well-being was also negatively impacted by financial difficulties and a lack of motivation for online learning.

1. Introduction

In October 2020, the number of Covid-19 cases in Malaysia increased drastically. This happened despite an earlier decrease in the middle of 2020, after the initial lockdown was lifted. The Malaysian government responded by placing many areas under a *Conditional Movement Control Order* (*CMCO*), aimed at controlling the viral outbreak by controlling the movement of people. The implemented measures included quarantining infected people, social distancing, the compulsory wearing of face masks and limiting the number of people in a car. Thus, the general Malaysian population was once again confined to social isolation: employees were working from home, though some were allowed to return to their workplace for a maximum of 4 hours per day, kindergartens, primary schools, secondary schools and tertiary institutions were closed, and lessons were delivered online to ensure the continuity of education. Traditional examinations were also replaced with other forms of assessment. Although online teaching allows for a degree of flexibility, in which students can learn anywhere and at any time, every form of education (face-to-face classes, laboratory practical, projects and internships) was affected by the Covid-19 pandemic. The pandemic has changed the education landscape, and online learning has become the new normal to the extent that it has revolutionized teaching and learning in the higher education sector. It is certainly undeniable that online learning has been the most sensible decision and probably the only option during this challenging time.

The shift to online learning was made at very short notice. While every effort was made to ensure that teaching materials and assessments were available for online delivery of courses to run efficiently and effectively, the higher education sector has also had to ensure that students were ready for online learning (Dhawan, 2020). Students must cope with the fact that in online learning, time management, self-discipline, and proactive learning are even more critical. In addition, students also face challenges such as access to internet, internet connectivity, additional costs incurred for better internet access, lack of a sufficiently functional laptop, and computer literacy and skills (Sundarasen et al., 2020). Students are also concerned about the efficiency and accountability of online lessons and assessments. All these factors have significant impacts on students' mental health and well-being, in the form of distress and anxiety (Son, Hegde, Smith, Wang, & Sasangohar, 2020).

Nonetheless, there are also many students in Higher Learning Institutions (HLIs) who are skilled in information and communication technology (ICT) and have adapted well to online learning environments, because they allow learning to take place at home or anywhere via computers or mobile devices and students do not need to travel to campus to attend physical classes (Gupta & Pathania, 2021). Generation Z, who are perceived to have higher self-efficacy in technology, may be able to cope with online learning materials and may be satisfied with the methods of online delivery and assessments.

The purpose of this study is to examine the impact of online learning on students' levels of distress and anxiety, including the positive factors of students' achievement and satisfaction. To date, all the studies on the impact of COVID-19 have concentrated on the negative emotions, and only a few (not from Malaysia and Indonesia) have examined the impact of students' self-efficacy and academic achievement and satisfaction on the effectiveness of online learning during this pandemic period.

1.1. Anxiety and Distress Related to Online Learning

Around the world, many studies on the impact of the COVID-19 pandemic on students in higher education were conducted in 2020, at the peak of the crisis. Results of studies conducted in Indonesia (Irawan, Dwisona, & Lestari, 2020; Rohman, Marji, Sugandi, & Nurhadi, 2020), China (Cao et al., 2020), Germany (Bäuerle et al., 2020), Switzerland (Shanahan et al., 2020), Jordan (Al-Tammemi, Akour, & Alfalah, 2020), Bangladesh (Akhtarul-Islam, Barna, Raihan, Khan, & Hossain, 2020; Hasan & Bao, 2020) and the USA (Son et al., 2020) all reported increased levels of generalized anxiety, depression and distress. Specifically, factors causing higher levels of psychological distress which were positively associated with students' anxiety symptoms were problems with online learning, including ineffective study plans and lack of technological skills, and academic delays. Additionally, Cao et al. (2020) reported that Chinese college students' anxiety regarding the pandemic was significantly associated with their place of residence, source of parental income, whether they lived with their parents, and whether any of their relatives or acquaintances was infected with COVID-19.

Online learning, web-based learning, and distance learning are terms often used interchangeably in the literature (Moore, Dickson-Deane, & Galyen, 2011). Distance learning or online learning have generally been associated with reported symptoms of anxiety, distress and resistance (Ajmal & Ahmad, 2019; Kwaah & Essilfie, 2017; Saadé, Kira, Mak, & Nebebe, 2017; Tuncay & Uzunboylu, 2010). Such findings have also been discussed recently within the literature.

Son et al. (2020) indicated that COVID-19 had increased students' level of fear and worry about their own health and the health of their loved ones and had led to increased difficulty in concentrating on academic work due to various sources of distraction, such as family members and household chores at home; they also found that online classes were subject to higher levels of distraction due to the lack of direct interactions and the necessity of paying prolonged attention to a computer screen. The sudden changes in the syllabus, the quality of the classes, technical issues with online applications, and the difficulty of learning online all served to increase students' academic workload and required them to increase their own efforts to catch up with online classes and class projects given the lack of in-person support from instructors or teaching assistants.

Students also experienced increased boredom and considerable anxiety during research courses, as well as emotional disturbances indicated by changes in mood caused by too many assignments that were considered ineffective. It was more difficult to achieve an understanding of the topics because the communication process in online methods was less effective, especially in practical courses, in which the process of communication and

discussion both with lecturers and fellow students traditionally place an important role. Students from low-income demographics were also financially burdened, as they had to increase their expenditure on internet bandwidth to be able to take part in online learning (Irawan et al., 2020; Rohman et al., 2020).

Evidence from several studies has indicated a significant gender difference in the levels of anxiety experienced. Ajmal and Ahmad (2019); Kwaah and Essilfie (2017); Saadé et al. (2017) reported that male students experienced slightly higher anxiety levels toward distance learning as compared to female students, while Sundarasen et al. (2020) found that the anxiety level was higher among female students than among male students. Factors that caused students anxiety included a lack of communication with tutors, poor feedback systems, a lack of interaction with classmates, and a lack of knowledge and understanding of the course content. Students who lived alone experienced the highest anxiety levels compared to those living with family and friends. Other contributing factors to academic anxiety were multiple and continuous alternative assignments without flexible deadlines and uncertainty regarding their exams; those students who were graduating felt helpless in their plans to launch their careers.

The unanticipated shift to online learning also caused additional stress to students due to contributing factors such as unstable internet connection, extra financial burden for internet quota, lack of readiness for the new learning method, and difficulties with time management and focusing while learning through a computer for a long period of time (Amir et al., 2020). The most commonly highlighted stressors were predominantly financial constraints, poor internet connection, uncertainty about the future due to COVID-19, having to adjust to remote learning and being isolated from their friends, which created undue frustration, anger, resentment and, ultimately, anxiety. Some students also reported having to use their mobile phones for online classes, and that the need to juggle household chores and take care of siblings while concurrently attending online classes further contributed to stress and health issues (Sundarasen et al., 2020). These issues and worries caused disruptions to their sleep patterns. Son et al. (2020) added that factors such as loneliness, insecurity or uncertainty, powerlessness or hopelessness, and concerns about academic achievement led to depressive thoughts in some participants, and a small number stated that the pandemic had led them to suicidal thoughts. A study on the impact of COVID-19 by Bäuerle et al. (2020) specifically reported that respondents aged between 18 and 24 had a high prevalence of generalized anxiety symptoms, depression symptoms, psychological distress and COVID-19 related fear. Shanahan et al. (2020) also reported that pre-pandemic social stressors such as bully victimization, stressful life events and feelings of social exclusion significantly predicted during-pandemic emotional distress on the same age group. During-pandemic lifestyle and economic disruption and feelings of hopelessness were also strongly associated with emotional distress in these young adults. These studies indicated that young adults have been more susceptible to distress and anxiety during this pandemic period.

1.2. Satisfaction with Online Learning

Student satisfaction has been defined as the learner's perception of the value of their educational experiences in an educational setting (Roach & Lemasters, 2006). The most recently published study on Malaysian students' satisfaction with the e-learning system was conducted by Shanahan et al. (2020); Raime, Shamsudin, Hashim, and Rahman (2020) and was supported by the earlier study conducted by Goh, Leong, Kasmin, Hii, and Tan (2017) who concluded that user satisfaction has a significant positive impact on the success of the e-learning portal for both male and female respondents. Factors such as interaction with peers, interaction with and feedback from instructors, and course design all led to better learning outcomes and satisfaction; and they further concluded that the e-learning portal not only facilitates the learning process among students, but also provides socioemotional support in a computer-mediated learning environment.

Other recent studies on student satisfaction with online learning have been conducted in South Korea and India (Almusharraf & Khahro, 2020), China (Chen, Jin, Liang, & Liu, 2021) and Saudi Arabia (Almusharraf & Khahro, 2020). All the findings were similar and suggested that students' perceived learning in online classes has a positive influence on student satisfaction. The interactive quality (learner participation or engagement, practice feedback, instructor support), service quality (course management, assessment plans, teaching pedagogies, course learning outcome achievement) and availability of the online teaching platform all had significant positive effects on student satisfaction with the online mode of lesson delivery.

Studies on the specific effectiveness of the e-learning platform Google Classroom have been conducted by Gupta and Pathania (2021) in India, Heggart and Yoo (2018) in Australia, Al-Maroof and Al-Emran (2018) in Oman, Abid Azhar and Iqbal (2018) in Pakistan, and Basher (2017) in Saudi Arabia. General feedback from student users of the Google Classroom platform indicated both effectiveness and ease of use (not boring nor a waste of time) in a relaxed learning atmosphere, and a high sense of students' satisfaction and achievement. Students are highly motivated to incorporate such pedagogical tools in their learning process, and they display satisfaction with the uploaded course content; learning is flexible, as they can work at their own pace, and students are able to voice their feedback and contributions in a way they feel comfortable with Gupta and Pathania (2021); Al-Maroof and Al-Emran (2018); Heggart and Yoo (2018). On the other hand, the feedback from instructors using the Google Classroom platform is mixed. The positive conclusions are that the Google Classroom platform did increase student participation and learning, and improved classroom dynamics and academic achievement. Instructors also indicated an improvement in the planning, execution, and evaluation of the course delivery and in academic achievement with computers (Basher, 2017; Heggart & Yoo, 2018).

Instructors' negative feedback on the effectiveness of the Google Classroom platform was focused on the lack of a user-friendly interface as the main reason for its inefficiency; hence, they used the platform only for document management and basic classroom management, without it having a significant impact on teaching methodologies (Abid Azhar & Iqbal, 2018). Both students and instructors found the messages, discussions and activities posted in the Google Classroom stream inefficient, as older messages moved further down the stream as more messages were added and students could not have a meaningful learning experience when instructors shared their course resources (Heggart & Yoo, 2018).

1.3. Self-Efficacy in Online Learning

It is important to note that even before the COVID-19 pandemic, many Malaysian HLIs had already incorporated e-learning, distance learning and blended learning in some common courses across faculties and postgraduate programs. And considering that education has become increasingly borderless, particularly after the COVID-19 pandemic, this mode of teaching delivery will continue to be employed. Thus, HLIs in Malaysia must ensure that their e-learning portal is operational 24/7, provides up-to-date, error-free and high-quality information, offers quality content, well-organized data and has a user-friendly design, so that students can continue to learn effectively online. The other factor that HLIs must consider is student self-efficacy in online learning, as not every student is comfortable using an e-learning portal, regardless of how user-friendly its design may be (Almusharraf & Khahro, 2020). Self-efficacy refers to "people's judgments of their capabilities to organize and execute a course of action required to attain designated types of performances" (Bandura, 1982). According to Taipjutorus, Hansen, and Brown (2012), self-efficacy in online learning is not only a good predictor of learners' academic outcomes, but efficacious learners also tend to persist, cope, and adapt well, even when they have no prior experience.

The most significant predictor of perceived satisfaction with online learning is computer self-efficacy (learners' confidence in their ability to use computers and other types of technology), followed by self-efficacy in online learning, prior online learning experience, number of online courses, and finally self-confidence with learner's control (Alqurashi, 2016; Landrum, 2020; Lee, 2015; Shen, Cho, Tsai, & Marra, 2013; Taipjutorus et al., 2012; Zimmerman & Kulikowich, 2016). Additionally, Lee (2015), who measured self-efficacy in online learning 3 times in a semester, concluded that students' online technology self-efficacy improved with practice.

The aims of this study are to answer the following research questions: (1) What are the impacts of *partial lockdown* or *CMCO* on students' mental well-being with regard to their concerns about ICT facilities, ICT hardware, motivation for online learning, physical health, living conditions and finances? (2) What are the impacts of online learning on students' distress, anxiety, academic achievement, and satisfaction in online learning? And (3) What are the significant predictors of students' satisfaction with online learning?

2. Methods

This is a cross-sectional survey study which involves collecting data from students of higher learning institutions at one specific point in time (during the *partial lockdown* or *CMCO* period). The research design is quantitative and data-oriented, whereby the collected information is analyzed with statistical techniques for the description, explanation, and prediction of variables related to online learning. Information is collected through the method of online survey questionnaires (Google Form) because all higher learning institutions are closed, and it is inexpensive and requires a shorter time span. The Google Form will ensure that the voluntary survey participants are able to give informed consent.

2.1. Samples and Procedures

This study is based on a secondary analysis of end-of-course evaluations completed through online surveys. Data was collected from undergraduates between 18 and 24 years old from the public and private higher learning institutions in Malaysia and Indonesia who volunteered to participate. Due to the difficulty of gaining a complete sampling frame because of the large population and the possible lack of response to the Google Form, a combination of convenience and snowball sampling was adopted in the data collection period. Convenience sampling involves low cost and easy accessibility while snowball sampling involves having participants identify other possible survey participants. This combination was used to ensure that the study achieved the response rate needed for generalizability. Before this study was launched, approval from the University's Research Ethics Committee was obtained. Participants took part in the study on a voluntary basis without incentives.

Data were collected via Google Form from 11 January 2021 to 20 Feb 2021, a period of 6 weeks during which a partial lockdown was in force in Malaysia and Indonesia, during which higher learning institutions were conducting online classes. Nine hundred and fifteen (915) participants participated in this survey, of whom 325 (35.52%) were males and 590 (64.48%) were females. The age range of participants was from 17 to 41 years (M_{age}=20.70, SD=1.91). The majority of the participants identified themselves as Malaysians (n=866) and the balance (n=49) were from other countries. During the data collection period, 53 (5.79%), 375 (40.98), and 487 (53.22%) participants were pursuing foundation, diploma, and bachelor's studies, respectively, of whom 25 (2.73%) were staying alone in a rented room, 18 (1.97%) were staying with friends in a rented residence, and 872 (95.30%) were staying with family.

2.2. Research Instruments
2.2.1. Kessler Psychological Distress Scale (K6)

The Kessler Psychological Distress Scale (K6) is a 6-item self-report instrument designed to measure nonspecific psychological distress. Participants were asked to respond to each of the items using a 5-point scale with response options ranging from 1 (*All of the time*) to 5 (*None of the time*). The K6 is one of the most widely used indicators of psychological distress, with well-established reliability (α = .84) (Mewton et al., 2016).

2.2.2. Course Anxiety Scale

The Course Anxiety Scale is an instrument for measuring students' perception of anxiety towards online learning. It is a measure of the degree to which situations pertaining to online learning are appraised as anxiety-inducing. The instrument comprises 18 items over three subscales – (a) computers, (b) the Internet, and (c) online courses, with a 5-point response scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The overall internal reliability for the course anxiety scale is high (α = .93). In addition, internal correlation coefficients for the three subscales are also high – (a) computers (α = .89), (b) the Internet (α = .86), and (c) online courses (α = .90)

(Bolliger & Halupa, 2012). For the current study, only the subscale of *online courses* was utilized due to its relevancy to the study.

2.2.3. Satisfaction with Online Learning Scale

The Satisfaction with Online Learning Scale (Roach & Lemasters, 2006) is a 13-item self-report measure of participants' level of satisfaction with online learning. In this study, participants responded to statements relating to the content and delivery of the course using a 5-point response scale (ranging from 1=*Strongly Disagree* to 5=*Strongly Agree*).

2.2.4. Self-Efficacy Questionnaire for Online Learning

The Self-Efficacy Questionnaire for Online Learning (SeQoL) was developed by Shen et al. (2013) to measure the multifaceted dimensions of self-efficacy in online learning. The SeQoL comprises 30 items, which measure five dimensions of self-efficacy in online learning – (a)self-efficacy to complete an online course (α = .93), (b) self-efficacy to interact socially with classmates (α = .92), (c) self-efficacy to handle tools in a course management system (α = .93), (d) self-efficacy to interact with instructors in an online course (α = .94), and (6) self-efficacy to interact with classmates for academic purposes (α = .93) (Tsai, Cho, Marra, & Shen, 2020). The SeQoL uses a 5-point scale with response options ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The current study only utilized the dimension of *Self-Efficacy to Complete an Online Course*, due to its relevancy. This dimension has an internal consistency of .91 with 8 items.

2.2.5. Academic Achievement

Academic achievement was measured by students' cumulative grade point average (CGPA) of the online courses taken.

2.2.6. Impacts of Partial Lockdown (CMCO)

The effects of the partial lockdown (CMCO) on students' mental well-being were evaluated through demographic data focusing on statements such as (a) reliability of internet access, (b) use-worthiness or functioning of personal computer, (c) financial difficulties, (d) motivation for online learning, (e) physical exercise, and (f) place of residence. Participants responded to the questions using a 5-point response scale ranging from 1 (*None of the time*) to 5 (*All of the time*).

3. Findings

Research Question 1: What are the impacts of Partial Lockdown (CMCO) on students' mental well-being concerning ICT facilities, ICT hardware, motivation to online learning, physical health, living condition and finances?

Overall, 79% of participants indicated that they had reliable internet access most/all of the time, with 21% reporting that they had an unstable internet connection. In addition, 78% of participants claimed to have a functioning laptop/ICT hardware most/all of the time to attend their online classes, with 22% reporting otherwise. Furthermore, 40% of participants reported that they were motivated to learn online most/all of the time, while 59% reported being less motivated for online learning.

In examining the difficulties that students may be faced with during the pandemic, 43% of respondents reported experiencing financial difficulties most/all of the time. On top of that, well over half of the participants (69%) were concerned with their physical health in relation to exposure to Covid-19. On the other hand, 76% of respondents reported satisfaction with their current living conditions. The complete data is summarized in Table 1.

Table-1. Impacts of Partial Lockdown/CMCO on Students' Mental Well-being.

Items All of the time	None of the time	Some of the time	Most of the time	All of the time
I have reliable internet access	18 (1.97%)	178 (19.45%)	514 (56.17%)	205(22.40%)
My laptop/ICT hardware is functioning well	19 (2.08%)	178 (19.45%)	440 (48.09%)	278 (30.38%)
I am motivated to learn online	170 (18.58%)	373 (40.77%)	260 (28.42%)	112 (12.24%)
I experience financial difficulties	148 (16.17%)	371 (40.55%)	298 (32.57%)	98 (10.71%)
I am concerned about my physical health	73 (7.98%)	211(23.06%)	307 (33.55%)	324 (35.41%)
I am satisfied with my living conditions	36 (3.93%)	177 (19.34%)	376 (41.09%)	326 (35.63%)

Note: n=915.

Research Question 2: What are the impacts of online learning on students' distress, anxiety, academic achievement, and satisfaction with online learning?

Table 2 revealed a slight level of distress (M=16.86, SD=5.21) experienced by participants when classes were conducted online during the pandemic. In addition, the results also indicated a feeling of nervousness (M=17.07, SD=4.43) towards online classes during the course of partial lockdown (CMCO). Nevertheless, participants were generally satisfied with the online learning experience (M=46.37, SD=7.80). The satisfaction was evident in students' academic achievement for courses conducted online during the partial lockdown with an average CGPA of 3.52 (SD=0.40).

Table-2. Descriptive statistics for student's distress, anxiety, academic achievement and satisfaction with online learning.

Variable	Range	Mean	SD
Distress	6 − 30	16.86	5.21
Anxiety	6 − 30	17.07	4.43
Academic Achievement	0 − 4.0	3.52	0.40
Satisfaction with Online Learning	17 − 65	46.37	7.80

Research Question 3: What are the significant predictors of students' satisfaction with online learning?

To estimate the proportion of variance in satisfaction with online learning that can be accounted for by distress, anxiety, academic achievement and self-efficacy in online learning, a standard multiple regression was performed.

The results revealed significant and negative relationships between satisfaction with online learning and distress ($r= -.262$, $p<.01$) and anxiety ($r= -.436$, $p<.01$); but significant and positive relationships between academic achievement ($r=.087$, $p<.01$) and self-efficacy in online learning ($r =.575$, $p<.01$), as shown in Table 3. Multiple regression analysis indicated that distress, anxiety and self-efficacy ($\beta=-.072$, $p<.05$; $\beta= -.214$, $p<.05$; $\beta=.479$, $p<.05$) in online learning were significant predictors of satisfaction with online learning. However, academic achievement was not a significant predictor of satisfaction with online learning. In combination, distress, anxiety and self-efficacy in online learning accounted for a significant 38.5% of the variability in satisfaction with online learning, $R^2 = .385$, adjusted $R^2 = .382$, $F (4, 910) = 142.41$, $p<.001$, as shown in Table 4. By Cohen's (1988) conventions, a combined effect of this magnitude can be considered "large" ($f^2=.626$). Unstandardized (B) and standardized (β) regression coefficients and squared semi-partial correlations (sr^2) for each regression model are reported in Table 5.

Table-3. Correlational matrix between satisfaction with online learning, distress, anxiety, academic achievement and self-efficacy in online learning.

No.		1	2	3	4	5
1	Satisfaction with Online Learning		-			
2	Distress	-0.262**		-		
3	Anxiety	-0.436**		0.417**	-	
4	Academic Achievement	0.087**		-0.005	-0.068*	-
5	Self-Efficacy in Online Learning	0.575**		-0.212**	-0.405**	0.210**-

Note: *Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

Table-4. Model summary of regression analysis.

Model	R	R Square	Adjusted R Square	F	Sig.
1	0.620[b]	0.385	0.382	142.405	0.000[b]

a. Dependent Variable: Satisfaction with Online Learning.
b. Predictors: (Constant), Distress, Anxiety, Academic Achievement, Self-Efficacy in Online Learning.

Table-5. Unstandardized (B) and standardized (β) regression coefficients, and squared semi-partial correlations (sr²) for each predictor in a regression model predicting satisfaction with online learning.

Variable	B	β	sr²
Distress	-0.108*	-0.072	0.007
Anxiety	-0.376**	-0.214	0.051
Self-Efficacy in Online Learning	0.883**	0.479	0.229
Academic achievement	-0.566	-0.029	0.001

Note: *p<.05
**p<.01.

4. Discussion

Of the 915 respondents, 59% reported feeling less motivated to learn online during this CMCO or partial lockdown period. From the information collected, the lack of reliable internet access (21%) and functional laptop devices (22%) may hinder online learning. These participants may be from the lower income households, who faced difficulties in sustaining their family expenses during the pandemic, as 43% of participants reported experiencing financial difficulties most/all of the time. Higher monthly internet expenses, extra costs for laptops and other ICT hardware for online learning and living in areas with weak internet reception all added to students' extra financial burden. Lastly, the number of people living under the same roof also affected participants' mental well-being and hence motivation for online learning. The data collected indicated that 24% of respondents were dissatisfied with their current living conditions, and 95% of the participants were living with their family with an average of 5 people in the home. This may be deemed as overcrowded, especially in the case of lower income households who live in smaller homes, as a lack of privacy (little individual space) and too much noise can affect online learning concentration. UNICEF has also noted that children from low-income families are at higher risk of dropping out of school due to the combined financial and psychological impacts of the Covid-19 pandemic (Tan, 2020). More than half of the participants (69%) were concerned about their physical health due to exposure to Covid-19, which added to the negative mental well-being of the respondents.

The data analysis revealed that self-efficacy in online learning ($\beta=.479$, $p <.05$) is the most important predictor of satisfaction with online learning, followed by anxiety ($\beta=-.214$, $p <.05$) and distress ($\beta=-.072$, $p <.05$) which together explain 38.5% of variance in satisfaction with online learning. Students with higher self-efficacy in online learning are more likely to experience online learning satisfaction. Similar results from studies on online learning during the pandemic have been reported by Chen et al. (2021) in China, Fachmi, Alsolami, Sopacua, and Prajogo (2021) in Indonesia, and Lin (2021) in Taiwan. Higher self-efficacy leading to higher satisfaction with online learning was also reported by pre-pandemic studies conducted by Joo, Lim, and Kim (2013) in Korea, Artino (2008); Wang, Shannon, and Ross (2013) and Zimmerman and Kulikowich (2016) in the U.S., and Ramsin and Mayall (2019) in Thailand.

Students' increased anxiety with online learning during the pandemic period has also been reported by Wang., Zhao, and Zhang (2020) in China, Fawaz and Samaha (2021) in Lebanon, Saddik et al. (2020) in United Arab Emirates, Bahçecioğlu Turan, Özer, and Çiftçi (2021) in Turkey, Servidio, Bartolo, Palermiti, and Costabile (2021) in Italy, Nishimura et al. (2021) in Japan, and Alonzi, La Torre, and Silverstein (2020) in Canada and the U.S. Hasan and Bao (2020) confirmed that college students suffered psychological distress due to ineffective e-learning systems and fear of academic year loss.

Finally, studies conducted by Al-Dwaikat, Aldalaykeh, and Rababa (2020) and Al-Tammemi et al. (2020) in Jordan, Hamza, Ewing, Heath, and Goldstein (2021) in Canada, and Hunt et al. (2021) in the U.S. all indicated that students experienced psychological distress during the pandemic period, all of which are consistent with the result of this study.

5. Conclusion

Heath experts globally have signaled their expectation of a prolonged course of Covid-19, due to the emergence of new mutant strains of the virus. This indicates that tremendous uncertainties still lie ahead of us in the education sector. Therefore, it is recommended that higher learning institutions collect comprehensive data on students' engagement and motivation in online learning, and monitor students' mental and emotional well-being, behavior and learning progress. Higher learning institutions can establish new ways of delivering quality education to stimulate learning motivation in disengaged students, and adopt a flexible curriculum and other facilities to support online learning, such as providing training to teach students about new technology, loaning laptops to students in need, providing secure and conducive living spaces for effective learning (such as hostels). Finally they should continuously conduct diagnostic assessments to identify students learning needs. These methods, in combination with counselling and behavioral adaptation, can ease students' distress and anxiety and will restore students' confidence and motivation in online learning and hence support them to complete their studies in this difficult period.

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