Factors influencing the level of satisfaction on online learning among tertiary students during Covid-19 pandemic era – A Malaysian study

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Abstract

The rapid progression for online learning today has turned into something even more significant with the Covid-19 pandemic, which had forced many schools worldwide to be closed for physical interactions. Education providers since then have been forced to push forward with the integration of online learning as an alternative to the blackboard-style of learning. From being complementary, online learning has now become the main medium of delivery for both teaching and learning for education providers at various levels, including universities. Lecturers and students on tertiary education levels were subconsciously forced to engage with synchronous and asynchronous activities on online platforms. As such, this study examines the higher learning institution students' preparedness, motivation, internet availability, technical support and psychological support that influences students' online learning satisfaction in Malaysia. Three hundred and thirty-six (336) responses were collected via online survey across Malaysia within three months from December 2020 until February 2021. Smart PLS 3.2.4 was used with Structural Equation Model for data analysis, with five hypotheses being examined for the current study. Findings from the current study demonstrated that motivation, psychological support, and technical support had significantly affected students' satisfaction. The outcomes of this study contributed to current trend of research during Covid-19 pandemic, which had placed particular focus on online learning. The current study was developed as there were only a few research that had been performed on this subject matter, particularly within a Malaysian context. It was suggested from findings of the current study that future studied can compare different countries to understand what whether similar factors that might have contributed to students' online learning satisfaction in the higher learning institutions can be found in multiple countries.

Keywords: Covid-19, online learning, psychological support, students' satisfaction, technical support

Introduction

The advancement of technology today has been developed tremendously to accommodate the needs of education, which has required a need for fast-moving knowledge transfer to take place within the community. This comes with the rise of online learning as a complementary teaching and learning tool for educators across the globe. As teaching and learning become delivered across multiple platforms across the internet via online learning, these platforms started to become a massive catalyst for people to become more adaptive to the rapid change in global education (Koksal, 2020). With global investments which relates to education technology reaching US$18.66 billion in 2019, there have been tremendous growth in adopting education technology. Language applications, virtual tutoring, video conferencing tools, or online learning software, has been projected to be a niche market which is able to gauge US$350 billion by the year 2025 (Li & Lalani, 2020).

This rapid progression for online learning became even more significant with the Covid-19 pandemic, which had forced schools worldwide to be closed for physical interactions. From this closure, over 1.2 billion learners in 186 countries were forced to be out of their usual classroom setting (Li & Lalani, 2020). Ever since then, all education providers were forced to push forward with the integration of online learning as an alternative to the blackboard-style of learning. From being complementary, online learning has since become the main medium of delivery for teaching and learning for education providers in various levels, including universities. Lecturers and students who are involved with tertiary education were subconsciously forced to engage with synchronous and asynchronous activities on online platforms.

Learning from challenges in adapting with new methods of teaching and learning, while at the same time being committed to preserve its high quality for students, the current study aims to examine the higher learning institution students' preparedness, motivation, internet availability, technical support, and psychological support that influences students' online learning satisfaction in Malaysia. This paper is further structured to be as follows. The following section discusses the literature review that structures the overall study. The research method is discussed in the Method and Study Area section. The results and discussion of the findings are laid out concurrently. Conclusions are drawn in the last section of this paper.

Literature review and hypothesis development

Student satisfaction

Student satisfaction is the most critical factor in encouraging students to continue learning. Student satisfaction was defined by Astin (1993) as student appraisal of their learning experiences at their academic institution. Meanwhile, Muilenburg and Berge (2005) stated that major differences persist within students' perceptions of their online learning experiences. Thus, students' perspectives on their educational experiences can influence their commitment to pursuing the course and their overall satisfaction with their online education learning experiences (Carr, 2000). When evaluating the success of implementing online learning, one of the most critical factors that should be taken into consideration is student satisfaction (Harsasi & Sutawijaya, 2018).

Elliott and Healy (2001) argued that student satisfaction is an attitude with short-term effect as evaluation is solely based on students' educational experiences during the time that they were

experiencing it. Hence, this is a factor that contributes to student retention and is an outcome of the educational system (Navarro et al., 2005). Elliot and Shin (2002), yet again, describe student satisfaction as students' subjective assessments of academic performance and experiences. Thus, student satisfaction can be described in terms of relative interaction and actual performance related to educational services offered during the period of study (Mukhtar et al., 2015). With multiple aspects considered, student satisfaction is hence defined as short-term behaviour which is formed based on an evaluation of students' experiences, services, and educational facilities (Li et al., 2016).

Numerous factors contribute to student satisfaction in a virtual atmosphere. For instance, Bolliger and Wasilik (2009) discovered three critical aspects that contribute to student satisfaction on online learning, namely the teacher or educator, the technology tools, and the interaction. This included communications about the course and lesson constituent elements, concerns about the management system, and websites. Furthermore, Liaw (2008) has identified essential constructs such as students' views on assessment tasks and self-belief, social skills, system quality, and interactive media instruction. In contrast, obstacles to virtual learning were found to be faced by students, which included administration matters, technical problems, time constraints, social contact, academic skills, and restricted access to materials.

Although numerous studies on online learning at the university level have been conducted by Mukhtar et al. (2015) and Li et al. (2016), very little research has been conducted on determining factors of students' satisfaction towards online teaching and learning during Covid-19 pandemic. As such, it becomes critical to investigate determinants which pose influence towards students' satisfaction with higher education during the Covid-19 pandemic. It is crucial to elicit students' perspectives on educational institutions to facilitate management in implementing policies that improve teaching and learning conditions.

Students' preparedness and students' satisfaction

The study began as a reaction to a sequence of queries established by Arif (2001) regarding students' readiness for online learning. For example, the preparedness of students will consider whether the student is adequately prepared to use computer technology and whether the student possesses the necessary competencies for accessing and navigating through course content. When it comes to educational models, the question will be, is the student prepared for self-evaluation and self-belief to adjust to new learning routes? Lastly, is the student ready to abandon traditional study techniques in favour of new ones?

In a university setting where online learning has become the chosen approach to lesson delivery, it may appear realistic to assume that these technology-assisted, instinctive digital students will thrive in such learning conditions. As the students become more familiarised with the education technology that are being used for their lecturers and lessons, they would frequently strive through the online learning environment. Additionally, attrition rates for online learning classes are mostly more significant than those for conventional face-to-face classes (Waugh & Su-Searle, 2014). These factors call into doubt students' readiness for university-level online learning settings.

Despite the speedy growth and recognition of online learning at the university level, not much research seems to have been conducted on students' preparedness or readiness for learning conditions. Warner et al. (1998) led one of the earliest studies on student preparedness for online learning, employing a sample from the Australian Vocational Education and Training (VET)

sector. The findings revealed that students were neither adequately prepared nor receptive to online learning. Parkes et al. (2015) found that students generally lacked perceived preparedness and lacked online learning competencies. While students may be adequately ready to handle the technology associated with online learning, they are not adequately willing for tasks such as reading and writing, being clear and succinct in responses, creating ideas, strategic planning, presenting arguments, and collaborating with others.

A study by Abdous (2019) sheds light on the critical nature of fostering an encouraging online learning experience by improving students' anxiety about completing online lessons. Thus, allowing students to complete an orientation to online learning should help them feel more willing to learn. Based on past research and related literature, students' preparedness may be a potential factor which contributes towards students' teaching and learning satisfaction. As a result, the following hypothesis is presented:

H1: There is a positive relationship between students' preparedness and students' online learning satisfaction during Covid-19 pandemic.

Student's motivation and student's satisfaction

According to Johnson et al. (2017), motivation serves as the basis for understanding complex behaviors. Bekele (2020) asserts that motivation is necessary for constructive learning, as it also influences the acquirement and establishment of higher-order thinking skills. Motivation is defined as students' readiness to initiate learning activities, and it has the potential to determine whether learning is successful (Tomy & Pardede, 2019). The intrinsic and extrinsic motivational orientations, as defined by self-determination theory, provide a useful framework for studying motivation in educational settings. Intrinsic and extrinsic motivation are not opposites on a continuum but distinct factors that can coexist and have varying effects on learning (Stutz et al., 2017).

Extrinsic motivation is manifested by an emphasis on achieving instrumental goals that extend beyond the actual learning process. Students who are extrinsically motivated may increase their concentration during the activity to meet their teachers' requirements, receive praise from their parents, earn a good grade, or gain peer recognition (Stutz et al., 2017). In contrast, students who are intrinsically motivated engage in an activity for more internal reasons, such as enjoyment and satisfaction. Students who are intrinsically motivated listen because they find the act of listening rewarding in and of itself or because they enjoy performing listening tasks.

Being able to understand motivation might lead to a satisfying experience for students (Johnson et al., 2017). Motivation is critical for task identification, increasing the likelihood of beneficial experiences affecting satisfaction and increasing the likelihood of retention (Strigas & Jackson, 2003). Johnson et al. (2017) investigated student motivation and satisfaction, where it was discovered that students were motivated by gaining learning experiences while at the same time being given the opportunity to share their personal knowledge, skills, and abilities. Hence, it is expected that students' satisfaction with teaching and learning increases with the increment of students' motivation. The second hypothesis is constructed as follows:

H2: There is a positive relationship between students' motivation and students' online learning satisfaction

Internet availability and student's satisfaction

According to Shitta (2002), the internet has indeed been described as an interactive high-speed line which connects, grips, and translates anywhere across the globe. It is part of a global village where numerous individuals are able to easily connect, find, and communicate with each other; while at the same time able to share knowledge instantly from one point of the world to another. The emergence of this technology has been able to be a catalyst in transforming higher educational practice in relation to academic learning. This transformation is expected to continue to be viable in the future (Apuke & Iyendo, 2018). In addition, Hussain (2012) argued that the usage of internet for tertiary education has been able to enhance academic development and research. It has also promoted virtual conversations to share research findings.

Apuke and Iyendo (2018) shed light on internet access, financial constraints, and implementation of online learning. Given the students facing a financial constraint, they expect that lecturers will utilize resources such as messaging applications which are included in online learning system. This finding is consistent with Allo (2020) discovery that most respondents believe it is more expensive to offer courses via online learning than fully face-to-face learning. Therefore, if decisions about learning modes were made solely based on cost, most respondents would prefer traditional classroom learning over online learning. In the shade of widespread access to the internet, the current study demonstrates that while individual tasks are preferable for maintaining physical distance during a pandemic, they require group tasks to assist friends who lack internet access.

From the discussion above, it has been found that students would enthusiastically support the online learning system as a means of extending their learning beyond the traditional face-to-face classroom model. Students are taught in this system to become accustomed to working online and paperless. Thus, the issue is the network availability and the financial capability of students. While most students can afford to purchase an Internet data package and get a good network, some are not even able to buy it. Hence, the current study examines the impact of internet availability on students' satisfaction. The third hypothesis is developed as follows:
H3: There is a positive relationship between internet availability and students' online learning satisfaction

Technical support and student's satisfaction

According to Lee et al. (2011), technical support entails assisting students with any technical problems which may arise while taking online or blended lessons. Whether it is online or blended learning, technology use has increased. According to Song et al. (2004), the critical element that creates challenges and determines student satisfaction in online learning conditions is the technical problem. Muilenburg and Berge (2005) discovered that learners who are familiar with technologies that are used in online learning would perceive significantly less difficulties in navigating with online learning as compared to those who are less familiar. As a result, educators and instructors need to ensure that students feel safe and secure when interacting with online-based technologies. They also need to be sure that they are able resolve technical issues as they arise among students (Muilenburg & Berge, 2005; Song et al., 2004).

As laptops, mobile phones, and technical support services become more accessible to students of tertiary education, many of the issues which revolves around online-based technologies has been slowly alleviated. As such, learners develop a greater sense of confidence in the system,

which ultimately increases their satisfaction with educational programs (Itasanmi & Oni, 2021). Technical support is a critical component of any open and distance learning system. It entails activities that are responsive to student's needs and make online learning and services extremely accessible to learners by providing a diverse range of support. In this manner, technical support would include information support, institutional support, academic support, and timely feedback to students (Aftab et al., 2019). Recent studies such as Aftab et al. (2019), also Itasanmi and Oni (2021) demonstrated that technical support services contribute the most to learners' satisfaction in open distance learning programs. Thus, it was concluded that technical support has a positive influence on students' satisfaction. Based on the discussion above, the fourth hypothesis is developed as follows:

H4: There is a positive relationship between technical support and students' online learning satisfaction

Psychological support-enjoyment and student's satisfaction

In essence, the enjoyment of having nurturing learning ecosystem for student satisfaction can be defined as the pleasure of fulfilment which is commonly associated with learning activities; as well as the experience related to those activities (Kangas et al., 2017). This definition places a greater emphasis on positive perspectives and sentiments toward the learning journey, which is often prompted by learning motivation (Chang & Chang, 2012; Topala & Tomozii, 2014). For instance, Chang and Chang (2012) discovered more significant correlation between student satisfaction and enjoyment. Hence, it is reasonable to presume that the more students engaged in enjoyment learning, the greater their satisfaction with their learning environment.

Teachers could transform any lesson into one that is more refreshing and pleasant for both students and teachers. However, this skill entails teachers' capacities for playfulness and teaching design (Pongpaew et al., 2017; Hyvonen, 2011). The findings demonstrate the importance of teachers being motivated and involved in accompanying pedagogical methods in ensuring student satisfaction with creative learning setting. This finding agrees with Frenzel et al. (2009), which had emphasised that teacher passion can be associated with student enjoyment in a nurturing setting. Additionally, research indicates that student satisfaction and the ability of schools to change sustainably is contingent upon teachers' pedagogical and emotional engagement (Kangas et al., 2017). Gil-Ariase et al. (2020) indicated that students who expressed greater enjoyment during lessons will have a higher level of satisfaction. Based on the discussion above, it is expected that psychological support-enjoyment will be one of the factors influencing students' satisfaction. Thus, the last hypothesis is developed as below:

H5: There is a positive relationship between psychological support and students' online learning satisfaction

This section discussed the variables in this study. It gives a definition, previous studies, methodology, and the relationship between the variables. As a result, the hypotheses in this current study are based on the gaps and limitations of each variable discussed in this section. This literature has led to the development of the framework and research hypothesis in this study. From the discussion above, this study examines the higher learning institutions' students' preparedness, motivation, internet availability, technical support, and psychological support that influence students' online learning satisfaction, particularly in Malaysia. These factors can influence the student's satisfaction through readiness for learning conditions, motivational orientations, network availability, technical support services, and enjoyment of the learning environment, which is

crucial to stimulating students' perceptions of educational institutions and also achieving expected learning outcomes.

Method and study area

The study employed cross-sectional quantitative method using survey, where students' satisfaction was considered as a set of variables that could be evaluated. The questionnaire adapted from Bolliger & Wasilik (2009) consisted of seven sections to studying on the commencement of online teaching and exploring the learning satisfaction amongst tertiary students in Malaysia. It consisted of student's T&L online satisfaction items (six items), students' preparedness (five items), students' motivation (four items), internet availability (four items), technical support (four items), and psychological support (five items). Items used to measure various concepts in this study is in Appendix 1. Five essential demographic items were chosen for this survey, i.e., age, gender, ethnicity, education background and current stage of learning. A total of 33 items were asked in this survey, segregated within seven subsections. Among the questions asked in the survey questionnaire include questions on students' satisfaction with their current online learning, their internet application, tools being used in the class, enjoyment, and their psychological level. A seven-point Likert-type measure varying from strongly disagree (1) to strongly agree (7) was offered as answer alternatives for all elements in this survey. Only one answer was permitted to be included per element.

It was recorded in 2019 that there were more than 700,000 students enrolled in higher education institutions in Malaysia (Hirschmann, 2020). Considering this population of tertiary education students in Malaysia, a total sample of 384 respondents was considered to be ideal for the current study (Krejcie & Morgan, 1970). From there, the current study requires complete responses from 117 respondents to reach a medium effect size of 0.15 (Green, 1991).

Purposive sampling technique was used with respondents receiving a link to online survey which is administered by academics at the university. It is a form of non-probability sampling technique that the researchers will choose the respondents from the population based on specific criteria. The purpose of using purposive sampling is to generate a sample of the population to participate in their study. Following this, the current study chose students from tertiary education institutions as samples. Distribution and collection of survey data was conducted within a duration of three months, beginning from January 2021 until the end of March 2021. Respondents' involvement in completing this survey was made to be genuinely voluntary and anonymous. After data collection was complete, the current study had managed to obtain complete responses from 336 respondents from different disciplines of study were chosen from both public and private higher learning institutions in Malaysia. Hence, 87.5 per cent of response rate was achieved for the current study to proceed with data analysis.

The current study utilized Structural Equation Model with Partial Least Squares (PLS) technique to examine the study model using SmartPLS 3.0 software (Ringle et al., 2015). This technique starts with descriptive analysis by using SPSS. It continues with the two-state analytical procedure suggested by Hair et al. (2019). It would then develop through an evaluation of measurement model for validity and reliability. Afterwards, the process continued with structural model evaluation to check the existence of relationship between variables in order to provide evidence to support or reject the developed hypotheses.

For data analysis using Structural Equation Model, a two-step assessment procedure of both measurement and structural models has an advantage over one step assessment procedure (Schumacker & Lomax, 2004; Hair et al., 2010). This measurement model would specify the measurement for each selected construct, while structural model would specify the connection between variables in the structural model (Hair et al., 2017). Many researchers choose PLS as their main statistical method for analysis because PLS offers concurrent assessment of both models, taking the lead to more precise assessments (Barclay et al., 1995). Due to the same reason, PLS is hence chosen as the data analysis technique for the current study.

Results and discussion

After completing the data collection process, the current study found a total of 336 responses from Malaysian tertiary education students which are complete and acceptable. Respondents were prompted to provide their background information, such as gender, age, ethnicity, current education level, and educational background. Table 1 provides a summary of respondents according to their demographic profile. In summary, about three-quarters of the respondents are female with non-science background and aged between 20-24 because this is the range that teenagers are in tertiary education in Malaysia.

Table 1. Demographic profile of respondents.

Items	Categories	Frequency	Percentage (%)
Gender	Male	93	27.7
	Female	243	72.3
Age	15-19	82	24.4
	20-24	250	74.4
	25-29	2	0.6
	Above 34	2	0.6
Ethnicity	Malay	203	60.4
	Chinese	70	20.8
	Indian	29	8.6
	Other	34	10.1
Education level	Certificate	7	2.1
	Diploma	187	55.7
	Degree	141	42
	Master	1	0.3
Education background	Science	39	11.6
	Non-Science	297	88.4

Convergent validity is a range whereby various estimating devices are applied to determine the related idea that might be inconsistent. Numerous measurements were utilized to explain convergent validity, which consists of signs such as composite reliability (CR) and average variance extracted (AVE) (Hair et al., 2010).

Table 2 emphasised on composite reliability values for the current study, which showed a degree to which construct indicators would predict latent construct, exceeding a suggested value of 0.7 (Hair, Sarstedt & Ringle, 2019). The overall figure of differences among indicators given by the latent construct was depicted by the extracted average variance, which had exceeded the required value of 0.5 (Hair et al., 2010). The outcomes for convergent validity are demonstrated in Table 2. The current study had earlier posited five items to be analyzed for students' preparedness. However, after data collection and analysis commences, it was discovered that only three constructs were suitable for the final analysis while another two had to be disregarded. This is due to the low value of loading that was discovered for SW1 and SW5 during preliminary analysis.

Table 2. Convergent validity.

Construct	Item	Loading	Cronbach Alpha	Composite Reliability	AVE
Psychological support (PS)	PS1	0.839	0.823	0.876	0.588
	PS2	0.849			
	PS3	0.782			
	PS4	0.663			
	PS5	0.681			
Internet availability (SIA)	SIA1	0.921	0.836	0.893	0.68
	SIA2	0.854			
	SIA3	0.863			
	SIA4	0.633			
Students' motivation (SM)	SM1	0.844	0.794	0.866	0.622
	SM2	0.841			
	SM3	0.835			
	SM4	0.610			
Students' satisfaction (SS)	SS1	0.811	0.871	0.903	0.608
	SS2	0.794			
	SS3	0.773			
	SS4	0.797			
	SS5	0.753			
	SS6	0.747			
Students' preparedness (SW)	SW2	0.772	0.735	0.85	0.654
	SW3	0.798			
	SW4	0.854			
Technical support (TS)	TS1	0.741	0.705	0.812	0.522
	TS2	0.634			
	TS3	0.701			
	TS4	0.803			

Discriminant validity suggests how distant had the measures failed to interpret other variables, which is indicated by low correlations amongst the purview of interest and the indicators of different constructs (Cheung & Lee, 2010). Comparing squared correlations between constructs and variance for a specific construct becomes potential to establish discriminant validity (Fornell & Larcker, 1981). The current study assessed discriminant validity through heterotrait-monotrait ratio (HTMT). While discriminant validity would exhibit problem when HTMT value becomes greater than 0.90 (Gold, Malhotra & Segars, 2001), all values indicated in Table 3 were shown to

be lesser than the suggested value of 0.90. These findings indicated that discriminant validity has been ascertained.

Table 3. Discriminant Validity based on HTMT criterion.

Factors	SIA	PS	SM	SW	SS	TS
Internet availability (SIA)						
Psychological support (PS)	0.527					
Students' motivation (SM)	0.659	0.82				
Students' preparedness (SW)	0.385	0.746	0.867			
Students' satisfaction (SS)	0.557	0.847	0.862	0.682		
Technical support (TS)	0.537	0.556	0.587	0.572	0.564	

The developed structural model indicated causal relationships amongst all constructs within the model (Sang, Lee & Lee, 2010). It started with assessing variance inflation factor (VIF), R-squared, F square, Q square, and path coefficients (Hair et al., 2014). Collinearity issue should have been addressed during the initial stages of the structural model. This was evaluated by examining the VIF value. The developed model should have a VIF value that is less than 5 to ensure that there is no multicollinearity issue arising prior to hypotheses testing. Table 4 showed no potential for multicollinearity issues within the model, as the VIF value was obtained to be less than 5, i.e., internet availability (1.614), psychological support (2.027), students' motivation (2.594), student preparedness (1.903) and technical support (1.463). After that, the analysis will investigate the effect size by using the F square.

Table 4. Initial Structural Model Analysis.

Item	**Path Coefficient**	**VIF**	**F Square**	**R square**	**Q square**
Internet availability (SIA)	0.034	1.614	0.002		
Psychological support (PS)	0.409	2.027	0.242		
Students' motivation (SM)	0.387	2.594	0.169	0.658	0.388
Students' preparedness (SW)	0.021	1.903	0.001		
Technical support (TS)	0.093	1.463	0.017		

Further, bootstrapping procedure with 500 resamples was performed to acquire t-values. The measurement model in Table 4 showed an R-squared value of 65.8 percent and p-values of the relationships amongst the constructs. Table 5 further indicates results from the tested hypotheses.

The predictor's effect size was evaluated using Cohen's f^2, which measures the relative impact of an independent variable on the dependent variable. The effect size of predictor from Table 4 construct indicated f^2 value of 0.242 and 0.169 for psychological support and students' motivation, which were of medium effect size (Cohen, 1992). Value of f^2 all other variables were of small effect size (0.002 for SIA, 0.001 for SW, and 0.017 for TS).

Table 5. Structural Model and Hypothesis Testing.

H	Variable	Beta Coeff.	Std. Error	T Values	P Values	Decision
H1	Internet availability (SIA) -> Students' satisfaction (SS)	0.034	0.046	0.751	0.453	Not supported
H2	Psychological support (PS) -> Students' satisfaction (SS)	0.409	0.047	8.730	0.000	**Supported**
H3	Students' motivation (SM) -> Students' satisfaction (SS)	0.387	0.056	6.917	0.000	**Supported**
H4	Students' preparedness (SW) -> Students' satisfaction (SS)	0.021	0.049	0.434	0.665	Not supported
H5	Technical support (TS) -> Students' satisfaction (SS)	0.093	0.042	2.199	0.028	**Supported**

Table 5 presents the results of structural model from PLS output, which comprised of path coefficients, t-values, p-values and standard error. As a result, psychological support ($b = 0.409$, $p<0.05$), students' motivation ($b = 0.387$, $p<0.05$), and technical support ($b = 0.093$, $p<0.05$) were found to be positively related to students' online learning satisfaction. In addition, the developed model managed to explain 65.8 percent of the variances. These results supported H2, H3, and H5 of the current study. In addition, the study also discovered that internet availability and students' preparedness had no significant effect on students' satisfaction.

The three supported hypotheses are consistent with previous research by Gil-Ariase et al. (2020), Johnson et al. (2017), Aftab et al. (2019), and Itasanmi and Oni (2021). Their studies found that psychological support, motivation, and technical support can positively affect students' satisfaction. In the context of an online platform, the result regarding the psychological support followed the findings from a study by Pongpaew et al. (2017). From this study, the importance of users' psychology was found on their engagement with an online platform to analyze their attitude and behavior. However, in the learning activity, this condition relies on the platform and the teacher's (Hyvonen, 2011) and the school's capacity (Kangas et al., 2017). Moreover, this study also revealed that this factor has the most influence compared to others.

Based on the findings of this study, motivation is the next factor that affects students' satisfaction. As Johnson et al. (2017) found before, students' motivation, such as gaining positive experiences in sharing their knowledge, skills, and abilities, significantly impacts their satisfaction. Moreover, some studies have divided motivation into intrinsic and extrinsic categories (Stutz et al., 2017). Intrinsic categories, such as enjoyment and interest, can boost students' satisfaction. Meanwhile, extrinsic categories, such as reward and compliance, also may increase learning

motivation and lead to satisfaction. Lastly, technical support, which proved to be the strongest contributor to students' satisfaction in the previous studies by Aftab et al. (2019) and Itasanmi and Oni (2021), still affects learning satisfaction in this tudy. Technical support lies in diverse range, such as information support, institutional support, academic support, and timely feedback to students. However, it no longer becomes the most substantial factor.

On the other hand, two factors which are internet availability and students' preparedness, do not impact satisfaction. It contradicts Apuke and Iyendo's (2018) and Allo's (2020) studies, which stated that online learning is expensive, and one of the reasons is the cost of internet access. This different result possibly happens because of the support of free internet data for home-based teaching and learning (PdPR) by The Malaysian Communications and Multimedia Commission during this pandemic (NST, 2021). Hence, students may no longer need to subscribe to the paid internet package in their online learning activity.

Besides internet availability, students' preparedness also does not significantly influence their satisfaction. Although learning orientation could boost students' preparedness and wipe out their anxiety about online courses (Abdous, 2019), this study proved that it does not influence students' satisfaction. Trembach & Deng (2018) study may answer this contradiction because they revealed that students from the millennial generation are able to be academically better when technology becomes a prominent figure in their learning setting.

Conclusion

This study investigated factors that influence students' satisfaction with online learning during the pandemic. Overall, three of the five proposed hypotheses were supported by the current study's findings. Findings have revealed that psychological support, motivation, and technical support significantly impact students' satisfaction. Meanwhile, internet availability and students' preparedness do not significantly influence students' satisfaction. These results give insights to the literature of online learning, especially during pandemic. It concludes that factors regarding students' psychological condition, such as motivation and psychological support, proved to be the strongest influential factor in their satisfaction.

As the pandemics may be a temporary condition, future research focusing on students' online learning satisfaction is encouraged to elaborate more factors behind it. It is possible that the longer the online learning exists, the more saturated the students' satisfaction. Therefore, it is important to consider the teacher and school's role in fostering this condition regarding psychological support. At the same time, referring to previous studies by Aftab et al. (2019) and Itasanmi and Oni (2021), motivation factors can be further investigated by dividing them into intrinsic and extrinsic factors.

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APPENDIX 1

Items used to measure various concepts in the study.

1. Students TnL satisfaction during covid19
- I'm satisfied with my online teaching and learning session during Covid19 pandemic.
- The quality of education received through online is similar to face-to-face class
- I received better teaching materials during online class as compared to face-to-face class
- The classes were conducted with full contribution from students
- The classes were conducted with full contribution from the lecturer.
- The contents given during online class are related to the topic being discussed

2. Students' preparedness
- I'm willing to study by using an online platform
- I read the materials provided before going to the online class
- I will ensure to join the class on time
- I will watch the video provided by the lecturer (if any)
- I can arrange my time properly during Covid19

3. Students' motivation
- Even though the class is online during Covid 19; I am motivated to join the class
- I'm aware of every single instruction given by my lecturer during the class
- I can learn through an online platform, as usual, similar to a face-to-face class.
- I am aware of my online class schedule

4. Students' internet availability
- My internet connection is stable enough for an online class
- Less distraction of internet connection during the online class
- I have enough internet data/wifi for an online class
- I subscribe for free internet available from the service provider

5. Technical support
- I have a laptop to study by using an online platform
- I have a printer to print all materials for class
- I have a handphone to communicate with friends for group assignment
- I have enough technical support in case something went wrong during the online class

6. Psychological support
- The lecturer understands the student's situation during Covid19.
- The lecturer gives students full support during the online class
- I enjoy my online class during the Covid-19 pandemic
- I will always discuss with someone if I have a problem with online class
- I have to put a lot of effort to understand the content delivered by the lecturer through the online class