

Remote Learning Satisfaction during Pandemic Covid-19: Non-Technical Students' Experience

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ABSTRACT

The higher education landscape had changed drastically during the pandemic COVID-19. Implementation of emergency remote learning in higher education context resulted in mixed feelings, motivation, perception, and satisfaction. Despite the challenges of technical and technological barriers faced by students worldwide, understanding their satisfaction with remote learning during pandemics offers an opportunity for higher education authorities to plan a comprehensive online learning ecosystem. This study aims to examine how final-year students perceived remote learning effectiveness, preference, and time management and how these factors subsequently affect their remote learning satisfaction. This study is quantitative in nature and based on a cross-sectional setting using an online survey. Most measures were adapted from past studies and mainly in the 5-Likert scale. The study among 152 final-year students in a management-based program revealed that remote learning effectiveness and time management affect students' satisfaction with remote learning. Remote learning preference was statistically insignificant toward remote learning satisfaction. Theoretically, this study contributes to the new literature on emergency remote learning satisfaction specifically among non-technical and final-year students that experienced both traditional and remote learning during their studies at the university. Practically, in designing an online learning ecosystem, university management should consider the different need and capability of the students that ensure students had adequate time to review the course material before and after the class which subsequently affect their remote learning satisfaction. Future studies should consider a larger sample and different predictors.

Keywords: pandemic COVID-19, remote learning effectiveness, remote learning preference, remote learning satisfaction, time management.

INTRODUCTION

Pandemic corona virus COVID-19 has changed how people live today. During the pandemic, while implementing movement control orders (MCO) worldwide, all activities seem to become stand-still. Many economic activities were suddenly stopped. People stay at home, work from home, study online, shift to online shopping, and even socialize via social media platforms (Lewis, 2020). This new normal had created opportunities and challenges. In the business context, new business models emerged. Product and service innovation was drastically introduced in the marketplace and gained healthy acceptance. In the education sector, few brands, especially on the digital platform become popular. For instance, it is recorded, the usage of teleconferencing platforms such as Zoom and Microsoft Team had increased tremendously. The daily usage of Zoom apps had increased by 300% whereby Microsoft Team enjoyed a 775% increase (Bary, 2020). This is perhaps supported by the report from The New Straits Times (2021) that revealed about 78% of tertiary students in Malaysia prefer online learning after the pandemic due to time and cost advantages. A similar trend was also recorded in other countries such as Canada (83%) and China (78%). Despite the

exciting discussion on the advantages of the new normal, it also creates discomfort, stress, anxiety, domestic violence, and child maltreatment in a particular group of people (Fegert, Vitiello & Plener, 2020; Suprpto et al. 2021).

Though online learning is not new to many people, the adoption before the pandemic is relatively slow due to several reasons. The study by Haron, Abbas, and Abd Rahman (2012) stated that the adoption of blended learning in Malaysia was low due to perceived usefulness, educational technology preference, and learning goals. Meanwhile, Ali (2004) highlighted that the main challenges of online learning are due to awareness, bandwidth and connectivity issues, computer literacy and digital divide, e-content quality issue, and difficulty in engaging learners. Today, online learning has become a normal practice in higher education and is well practices at school and even at preschool levels. According to Zalat, Hamed, and Bolbol (2021), online learning has been neglected for the past few years until the COVID-19 pandemic forced worldwide to adopt it. The implementation of online learning had mixed results. Countries with outstanding Internet access and infrastructure could move faster and gain advantages. Affordable families can prepare appropriate facilities for online education (computers, gadgets, Internet, etc.); meanwhile, those less fortunate families perhaps could not afford to prepare the relevant facilities for their kids' online learning. This is supported by the statement of UNICEF (2021), "At least 1 in 3 schoolchildren had no access to remote learning during school closures". Zakaryia, Khaled, and Omar (2021) further asserted that university students from underdeveloped countries are also much affected in obtaining quality higher education due to several limitations such as infrastructure, Internet access as well as relevant training on online learning. Such a situation creates a disadvantage for the students and further results in dissatisfaction and subsequently affects their academic performance (Gopal, Singh, & Aggarwal, 2021). In addition, online learning during a pandemic is more challenging for technical education whereby the course content was formerly delivered by practical and simulation such as in veterinary and medical studies (Mahdy, 2020).

Due to that reason, the Malaysian Government introduced several initiatives to ensure that Malaysian students had equal access to education during the pandemic. The initiative of 'Pelan Jana Semula Ekonomi Negara/The National Economic Recovery Plan' (PENJANA) by the Malaysian Government during the pandemic aims to provide the Internet for education and productivity. This is further clearly outlined via Jalinan Digital Negara (Jendela) and Pusat Internet Komuniti (PIK), which provide free Internet access for students. Besides, under Program Jaringan Prihatin, the B40 group (lower-income earners) could enjoy the subsidized price of a smartphone or Internet data package mainly to reduce the digital divide (Pelan Jana Semula Ekonomi Negara, 2020). A recent initiative of Peranti Siswa 2022 by Ministry of Communication and Multimedia Malaysia had assured the B40 group of students to study without worry of assessing teaching and learning devices such as tablet which believed to improve their academic experience and performance.

Studies examining student perception and satisfaction with online learning experiences before pandemics have received considerable attention. A literature search from the Scopus.com database using "online learning + higher education + student satisfaction" keywords revealed that about 734 articles on this subject from 1999 to 2019. Meanwhile, about 434 articles were recorded from 2020 to 2022 (during the pandemic). Among the top scholars were Al-Rahmi, Abdullah, Culp-Roche, Hampton, and Hensley. Most articles originated from the United States (329), Australia (84), Spain (80), China (65), the United Kingdom (65), and Malaysia (45). The findings were inconsistent across the countries. For instance, the studies by Dziuban et al. (2015) among 1217 students in the United States found that engaged learning and agency have a significant effect on online learning satisfaction. Meanwhile, an assessment was not significant. Interestingly, Paul and Jefferson (2019) compared student performance in online versus face-to-face settings. The study among 401 traditional and 147 online students revealed that there was no significant difference in students' performance. However, for students that have been forced to use online learning during the pandemic (namely emergency remote learning), the situation could be different. This is because

students in the pandemic era were not typically distance-learning registered students. They were mainstream students who had experienced the physical/traditional class (face-to-face contact) before the pandemic. Half of their study duration was conducted via a hybrid method which includes online learning. Hence, mentally they did not prepare (Saha, Dutta & Sifat, 2021).

During the pandemic, Ngah et al. (2022) stated that ease of use is among the influential factor on student satisfaction and performance. Lorenzo-Lledó (2021) opined that student satisfaction with online learning during COVID-19 is also moderate, caused by several negative experiences such as connection problems, a feeling of loneliness, and less interaction between instructors and peers. Meanwhile, the study by Amir et al (2020) among Indonesian students revealed that students perceived to have better time management via online learning during the pandemic. However, Amir, Tanti, and Maharani (2020) further stressed that studies on blended learning versus distance learning are rather limited. In addition, Drueke et al. (2021) stated that in a forced situation such as during a pandemic, it is difficult to predict the online learning adoption that is solely determined by attitude factor. Hence, this study aims to examine students' perceptions and experiences of online learning during the pandemic. This study aims to examine how students' preferences, perceived remote learning effectiveness, and time management during remote learning influence their remote learning satisfaction.

LITERATURE REVIEW

The term remote learning was used throughout this article. According to Schultz and De Mers (2020: 143), online learning is “the well-designed, planned approach to storyboard and create deep virtual learning experiences with no physical interaction in a physical classroom environment, which includes a design phase potentially lasting several months in advance of offering the course”. Meanwhile, blended learning or referred as hybrid learning is a combination of face-to-face and online learning activities where computer-mediated activities replace “seat-time” in the classroom (Schultz & DeMers, 2020). During the pandemic, emergency remote learning was applied by numerous universities worldwide. Emergency remote learning is the unplanned and rapid migration from traditional face-to-face to online learning. The main objective of emergency remote learning is not to create a robust educational platform. It aims to provide temporary access to education during pandemics which was previously conducted via face-to-face (Hodges et al., 2020). Remote learning may have similar features of online learning but may incorporate other instructional tools which include synchronous and asynchronous course delivery (Hrastinski, 2008).

The implementation of emergency remote learning affects different learners differently. Most pieces of literature highlighted that difficult to access and participate in online learning during the pandemic as a major challenge for many students around the globe (such as Amir et al., 2020; Armstrong-Mensah et al., 2020; Zalat et al., 2021). Such challenges further affect students' online learning experience and satisfaction. However, Fatani (2020) and Zalat et al. (2021) stressed that technology-related factor (such as accessibility, connectivity, and technical) was not the sole predictors of online learning success. The study by Kovačević et al. (2021) among 547 students in Serbia found that attitude, motivation, expectation, online situation, and digital competency affect their satisfaction towards remote learning. Jung and Shin's (2021) study among 182 students in Korea further revealed that remote learning quality (system quality, information quality, and service quality) influences the flow of learning which subsequently affects their satisfaction. Meanwhile, the study by Tsang et al. (2021) among 409 students at Hong Kong university revealed the importance of learning effectiveness (including perceived learning outcome and student initiative) on students' satisfaction with remote learning. Hence, it is postulated that :

H1: Students' perception of remote learning effectiveness has a positive relationship with remote learning satisfaction.

Higher education students had mixed feelings and perceptions on the introduction and implementation of emergency remote learning. Few students had a high preference the online learning during the pandemic

and had satisfied with the implementation. For instance, the study conducted by Amir et al. (2020) among 301 Indonesian students discovered that 44.2% of the respondents prefer online learning as compared to the traditional classroom. This is notably true for the junior cohort as compared to their seniors. According to Amir et al. (2020), the plausible reason for the high preference for online learning among junior students was due to the nature of the course content in the early stage of the program which is basic, more theoretical, and lacks practical as compared to higher-level courses. Hence, they preferred online learning which is more student-centered and could learn at a convenient time. The study of Gopal et al. (2021) and Kerz?i? et al. (2021) among others opined that the quality of the instructor and course design would affect students' satisfaction with online learning during the pandemic. Accordingly, if students perceived that the instructor could explain the course content effectively online, students would have a high preference for online learning thus subsequently affecting their satisfaction (Gopal et al., 2021; Kauffman, 2015). Similarly, if students perceived that the course content including assessment could be done efficiently online, then the higher their preferences for online learning (Ahmad et al., 2021; Gopal et al., 2021). Based on the preceding discussion, it is hypothesized that :

H2: Students' remote learning preference has a positive relationship with remote learning satisfaction.

Time management is among the most debatable factor in the context of online learning amid covid-19. Few scholars stated that online learning permits students more time to focus and review their academic material before and after the class (Amir et al., 2020; Sangedhi, 2019). Besides, remote learning during pandemics offered more flexibility and convenience (Muthuprasad et al., 2020) at a significant cost (such as Internet data fees) (Amir et al., 2020). A qualitative study by Khalil et al. (2020) among Saudi Arabia students revealed that students had experienced better time management via online learning during the pandemic and had more time with family. On the other hand, scholars such as Elshami et al. (2021) and Al-Kumaim et al. (2021) claimed that remote learning during pandemics creates a higher workload and study load thus demand for better time management, creating tension and leading to dissatisfaction. Interestingly, for instructors, online learning preparation is considered a time-consuming process (Selvanathan et al., 2020). Besides, a few pieces of literature also highlighted that an instructor's time to respond to students' questions and inquiry is a key determinant of overall remote learning satisfaction (such as Khalil et al., 2020; Muthuprasad et al., 2021; Selvanathan et al., 2020). Based on the preceding discussion, it is proposed that:

H3 : Students' perceived time management has a positive relationship with remote learning satisfaction.

METHODOLOGY

This study is quantitative in nature and based on a cross-sectional setting. The data collection was conducted via an online survey and undertaken only once. The population of this study consists of the final year students from one of the management-based faculty in Malaysia. The reason for selecting these students is due to their experience of learning in both conditions i.e. traditional lecture and remote learning environment. Besides, during the traditional lecture, student-centered learning such as problem-based learning and experiential learning was embedded in their curriculum thus enabling them to provide their views and experiences of new methods, namely remote learning, as compared to the traditional ways. For instance, before pandemic COVID-19, in sales management class, students were allowed to run a business hub at the faculty. However, during the pandemic, the assessment was changed and replaced with an alternative assessment. Based on the faculty record, the total population is 649. To adequately represent the population the sample size was set based on Krejcie and Morgan's (1970) sample size determination table. The sample size for 649 populations is 242.

To obtain the appropriate number of the sample (i.e. 242), a simple random sampling technique was employed. The questionnaires were distributed randomly via an online Google Form survey. After three weeks, a total of 194 respondents responded. Preliminary check and data cleaning resulted in 152 usable data thus proceed for further data analysis yielding a 62.8% response rate. According to Fincham

(2008), a response rate of approximately more than 60% is considered acceptable for most research.

The measurement of the items in this study was adapted from past literature. Time management experience was adapted from Khalil et al. (2020) and Muthuprasad et al. (2021) with 3 items. Meanwhile, the measurement for preference, effectiveness, and learning satisfaction was adapted from Amir et al. (2020) with 2, 4, and 7 items, respectively. Most items were on a 5-point Likert scale ranging from 1-strongly disagree and 5-strongly agree. Besides, dichotomous questions, and open-ended questions were also included in the survey. For the purpose of the study, data analysis was performed by utilizing SPSS 25.0 and Smart PLS 3.2.2.

FINDINGS AND DISCUSSIONS

1. Demographic Profiles

Based on Table 1, the majority of the respondents were female (77%). When the respondents were asked about their Internet access location during the remote learning, 2.7% stated that they accessed from the university. The remaining students have access from their hometown, which can be categorized as urban location (27.6%), suburban (44.7%), and remote area (25%). The majority accessed via WiFi either from the university facility or home WiFi. Based on the survey, the majority of the respondents reported that they experienced moderate Internal signal strength (63.8%), followed by strong signal (27.6%), very strong signal (3.9%), and weak signal (4.7%). The majority of the respondents also accessed their remote learning via notebook (79.6%), followed by smartphone (13.8%) and personal computer (6.6%).

TABLE I Respondent's Profile and General Information on Remote Learning Usage

No.	Description	Frequency (n)	Percentage (%)
1	Gender		
	a. Male	35	23
	b. Female	117	77
2	Location of Internet access		
	a. In campus	4	2.7
	b. Hometown		
	i. Urban	42	27.6
	ii. Suburban	68	44.7
iii. Remote area	38	25	
3	Type of Internet access (most)		
	a. Home/Campus WiFi	99	65.1
	b. Mobile data	53	34.9
4	Quality of Internet access		
	a. Very strong	6	3.9
	b. Strong	42	27.6
	c. Moderate	97	63.8
	d. Weak	7	4.7
e. Very weak	0	0	
5	The device used to access remote learning		
	a. Smartphone	21	13.8
	b. Notebook	121	79.6
	c. Personal computer	10	6.6

Frequency Analysis

A frequency analysis score for each item for all variables was conducted. In short, the mean scores for remote learning preference, time management, remote learning effectiveness, and remote learning satisfaction were 3.5428, 3.6425, 3.0773, and 3.1090 respectively. Based on a 5-point Likert scale, the mean scores indicated that respondents were in an agreement with most of the statements. When asked about their preference for remote learning over traditional lectures, more than 50% of the respondents stated that course content and assessment were more suitable to be delivered in remote learning. In this study, respondents also were asked about their remote learning effectiveness. Only 26.3% of the respondents (either agree or strongly agree) indicated that they did not experience any problem during remote learning. About 58.6% of the respondents indicated that they had experienced stress during remote learning. The majority of the respondents also agreed that they had more time to review the teaching material before and after the class during remote learning. Respondents also further asked about their experience with time management during remote learning. In general, more than 60% of the respondents stated that remote learning enables a more flexible schedule, better time management, and saves time and effort. When asked about their remote learning satisfaction, respondents showed mixed feelings.

1. Assessment of Measurement Model

For the purpose of data analysis, statistical tools such as Statistical Package for Social Sciences (SPSS) version 25.0 and SmartPLS-SEM version 3.3.2 were used. The following report is based on two stages model procedure as suggested by Chin (2010). Firstly, the measurement model was used to assess the relationship between indicators and the latent variable. Secondly, the structural model was employed to assess the relationship among the latent variable (Hair et al., 2011; Henseler & Fassot, 2010). Accordingly, the measurement model includes the test of composite reliability to examine the internal consistency whereby individual reliability and average variance are extracted (AVE) to evaluate the convergent validity. Discriminant validity further can be assessed by the Fornell-Larker criterion, cross-loading or heterotrait-monotrait (HTMT) (Hair, Hunt, Ringle & Sarstedt, 2017).

The acceptable threshold level of CR is 0.60 to 0.70 for exploratory research (Chin, 2010). Based on Table 2, the composite reliability for all the constructs of the study ranged from 0.874 to 0.929 hence assured the reliability of the measurement model. In order to assess convergent validity, that is the degree to which one particular measure of the construct relates to the other measure of the same underlying construct, the value of AVE is examined. Scholars such as Hair et al. (2017) proposed that the AVE should be greater than 0.5 to show the amount of variance the items accounted for by the latent variable. Accordingly, based on Table 2, all the constructs gained convergent validity whereby all the AVE ranges from 0.603 to 0.814.

TABLE II Internal Consistency and Convergent Validity Assessment

Construct	Item	Convergent validity		Internal consistency	
		Loading (>0.60)	Average variance extracted (AVE) (>0.50)	Cronbach Alpha (0.60-0.90)	Composite reliability (CR) (0.60-0.90)
Preferences	Course content explanation is more suitable delivered in remote learning.	0.899	0.777	0.714	0.874
	Assessment is more suitable delivered during remote learning.	0.863			

Time management	Remote learning provides flexible schedule and convenience.	0.881	0.814	0.886	0.929
	Remote learning provides me with better time management.	0.913			
	Remote learning saves my time and effort.	0.912			
Effectiveness	I do not experience any problems during remote learning.	0.775	0.647	0.818	0.880
	I do not experience stress during remote learning.	0.806			
	I have more time to review learning materials before group discussion with remote learning.	0.792			
	I have more time to review all of the learning materials after class with remote learning.	0.842			
Satisfaction	Remote learning gives similar learning satisfaction to classroom learning.	0.807	0.603	0.889	0.913
	Remote learning can be implemented for junior students in the next semester.	0.756			
	Remote learning gives motivation for self-directed learning and eagerness to master learning materials before group discussion.	0.768			
	Communication with lecturers and fellow students is easier with remote learning.	0.771			
	I like remote learning than classroom learning.	0.840			
	I study more efficiently with remote learning.	0.834			
	I can perform better (academic result) with remote learning.	0.640			

For the purpose of the study, discriminant validity was assessed by using Fornell and Larcker's (1981) criteria. To achieve adequate discriminant validity, the square root of the AVE should be greater than the correlation among the latent constructs (Fornell & Larcker, 1981). Based on Table 3, all values of the square root of AVE (values in bold) were greater than the value of the correlation of the latent construct and thus assured adequate discriminant validity.

TABLE III Fornell-Larker Criterion

	Effectiveness	Preference	Satisfaction	Time mngt
Effectiveness	0.804			
Preference	0.397	0.881		
Satisfaction	0.717	0.448	0.776	
Time mngt	0.518	0.382	0.582	0.902

Assessment of Structural Model

Assessment of the structural model consists of several tests which include assessment of collinearity, structural model relationship, R2, effect size (f2), and predictive relevant (Q2). To assure that there is a multicollinearity issue, the VIF value should be below 10 (Sarstedt & Mooi, 2014). Based on the analysis, the VIF value for remote learning effectiveness (1.459), remote learning preferences (1.250), and time management (1.438) indicate no issue of multicollinearity. The following Figure 1 shows the structural model of the study.

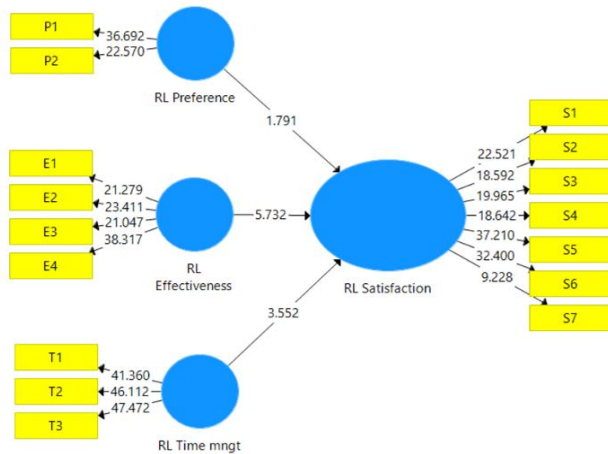


Fig. 1 Structural model

To test the hypothesized relationship, bootstrapping procedure using a 5000 subsample shows that remote learning effectiveness ($\beta=0.530, p<.001$) and time management ($\beta=0.254, p<0.01$) have a significant positive relationship on remote learning satisfaction. Thus, H1 and H3 were supported. Meanwhile, remote learning preference ($\beta=0.141, p<.074$) was statistically not significant. Hence, H2 was not supported. The following Table 4 summarized the path analysis result:

TABLE IV Path Analysis Result

Hypotheses	Path coefficient	ST-DEV	T-stat	P-values	Result
H1: Effectiveness à Satisfaction	0.530	0.092	5.732	0	Supported
H2 : Preference à Satisfaction	0.0.141	0.079	1.791	0.074	Not supported
H3 : Time management à Satisfaction	0.254	0.071	3.552	0	Supported

Next, the test of co-efficient of determination of exogenous variable on endogenous variable was assessed using R2. Based on the analysis, the R2 value is 0.591 which indicates that 59.1% variance in remote learning satisfaction was explained by remote learning effectiveness, remote learning preferences, and time management. The effect size was checked via f2. Effect size demonstrates the relevance of constructs in explaining selected endogenous constructs. Effect size could enable researchers to understand

how much remote learning effectiveness, preference, and time management contributes to R2 value in explaining remote learning satisfaction. According to Hair et al. (2017), the f^2 value of 0.02, 0.15, and 0.35 are reflected as 'small', 'medium', and 'large' effect sizes. The findings revealed that f^2 for remote learning effectiveness (0.470), remote learning preference (0.039), and time management (0.109) were 'large', 'small', and 'small' respectively.

Lastly, the predictive relevant (Q^2) of the model was checked. Q^2 was calculated using blindfolding procedures to measure the quality of the PLS path model. In this study, the Q^2 value is 0.341 which is greater than zero indicating the predictive relevant of the model was achieved (Hair et al., 2017).

CONCLUSION

Based on the findings, two hypotheses H1 and H3 namely remote learning effectiveness and time management were found to have a significant relationship with remote learning satisfaction. This is consistent with the past studies' findings (Amir et al., 2020; Tsang et al., 2021). Based on the context of the study, the final-year students perceived that remote learning effectiveness and perceived time management have a significant impact on their remote learning satisfaction. The higher the perceived remote learning effectiveness and time management during remote learning implementation, the higher the satisfaction. Students were asked whether they had experienced any difficulty and stress during remote learning implementation. Even though about 60% indicated that they had faced problems and stress during the emergency remote learning, the implementation notably facilitate them to have more time to review the learning materials before and after the class. This could perhaps justify how students perceived that their remote learning sessions were effective. Moreover, the majority of the respondents had moderate (63.8%) to strong (27.6%) Internet signal access thus suggesting the effectiveness of the remote learning session. Problems and stress during remote learning faced by the final year students probably recorded from the students in the rural area (23%) with limited access to the Internet (4.6%). Besides, flexible and more time to review the class content before and after the class could justify the reason that students be able to perform better in the academic result which leads to their satisfaction with remote learning.

The findings also recorded that only one hypothesis (namely H2) pertaining to remote learning preference statistically was insignificant. As stated earlier, there were mixed findings on remote learning preference, thus to a certain extent, the finding is consistent with the past literature (such as Amir et al., 2020 and Elshami et al., 2021). When the final-year students were asked about their preference for remote learning compared to traditional classroom learning, half of the respondents stated that they preferred remote learning during the pandemic. However, path analysis shows that students' preference for remote learning statistically failed to affect their satisfaction. As final-year students, some of the course content and assessment were viewed as better conducted via face-to-face learning. This holds true whereby in detail, about 40.2% of the respondents have disagreed that remote learning provides similar satisfaction as compared to a traditional class. As a final-year student, a few courses such as Marketing Seminar, Strategic Management, and Strategy and Market Analysis required formative and summative assessments throughout the semester. The subjects consist of a combination of theories and practices which required students to have better clarification and explanation from the instructors which is believed to be best conducted via traditional classroom. Besides, as final-year students, engagement with instructors and peers was perceived as strongly needed to create an effective learning process. This is consistent with the suggestion of Platt, Raile, and Yu (2014) that even though exposure to online learning lead to perceived equivalence to face-to-face learning, students perceived that fewer interaction (instructor and peers) opportunities are available in the online learning context especially when the class was based on asynchronous technology dominant.

Using this sample, about 50% of the respondents either agreed or strongly agreed that remote learning enhanced motivation for self-directed learning and eagerness to master the learning materials. In doing so, students are required to spend extra time in the learning process. Spending more time would affect the assigned 'student learning time' (SLT), which later could create tension and stress among students (Elshami et al. 2021).

Moreover, this further supported that about 40.8% of the respondents were unsure whether they studied more efficiently with remote learning. Hence, time management for remote learning should carefully design by the instructor to ensure the effectiveness of course delivery and performance.

These findings contribute to both theoretical and practical implications. Theoretically, this study contributes to extending the literature on remote learning satisfaction, especially during the pandemic Covid-19, specifically from non-technical students' perspective in Malaysia as much earlier studies focused on technical-based students' perspectives. Similar to technical students, management students also appreciate remote learning effectiveness and time management which also affects their satisfaction. Though final year students had a high preference and perceived remote learning as more flexible and convenient, they looking forward to the better arrangement of course content, delivery, and assessment that is efficient and less stressful. Hence, a future online learning ecosystem should be carefully designed considering the different needs of students' remote learning capabilities especially related to technical and technological issues (Internet coverage). Instructors should consider blended learning, and alternative assessment and should reduce the dependency on asynchronous technologies as senior students look for a more interactive session with their instructors and peers.

This study only focuses on a specific bachelor's program and is small in terms of sample number. Future studies should consider a more holistic academic program and a larger sample size. Besides, future research could compare how students perceived online remote learning and traditional learning and integrate new predictors such as attitudes, peer pressure, and technology-related factors.

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