

Research Article:

Remote Learning Satisfaction during COVID-19 Pandemic: A Case Study of a Private Higher Education Institution in Malaysia

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ABSTRACT

Since 2020, the abrupt change of pedagogy in education amid the COVID-19 pandemic resulted in various challenges to both instructors and students. Higher education institutions (HEIs) shut down to contain the spread of the virus and shifted to online learning environments. Due to uncertainties, instructors and students were unprepared to cope with the future. Accordingly, instructors and students had to embrace new technologies quickly. This study examines how students perceived remote learning and their level of satisfaction. The data collected were from a Malaysian private HEI that involved 2,097 undergraduate students quantitatively, modeled on Ramsden's (1991) Course Experience Questionnaire (CEQ). The findings revealed the effects of six factors, i.e., instructors' performance, students' educational goals, the remote learning platform, study workload, online assessment, and learning support with a positive relationship on the overall satisfaction of remote learning. Policymakers, university administrators, and instructors could benefit from this study because it has demonstrated that several factors shape students' satisfaction and affect their learning effectiveness in a remote learning environment.

Keywords: Remote learning, COVID-19, satisfaction, student workload, learning support, online assessment, tertiary education in Malaysia

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INTRODUCTION

The outbreak of the Coronavirus disease (COVID-19) and the lockdown measures implemented worldwide to contain the spread of the virus has affected people's lives and brought changes to many industries and sectors. One of the sectors severely affected by the pandemic is education, mainly due to abrupt and unplanned closures of educational institutions as part of control measures in response to COVID-19 considering the health and safety of students, parents, instructors, administrators, and other support personnel (Hodges et al., 2020). The United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2020) estimated the disruption in the learning process of 94% of the world's student population due to the closure of educational institutions. In Malaysia, 6.1 million students from primary to tertiary education were affected (Banoo, 2020). The unprecedented crisis that gripped the education sector amidst the COVID-19 pandemic has led UN Secretary-General Antonio Guterres to warn of "generational catastrophe [in education] that could waste untold human potential, undermine decades of progress, and exacerbate entrenched inequalities" (UNESCO, 2020).

Under such pressing circumstances, Higher Education Institutions (HEIs) have no other option but to resort to remote learning through digital platforms to maintain the continuity of instructions. The abrupt transition from face-to-face to online platforms due to COVID-19 is termed differently by different scholars. Hodges et al. (2020) referred to it as "emergency remote teaching," whereas others such as Adedoyin and Soykan (2020) described it as "crisis-response migration methods," as adopted by HEIs. Meanwhile, this alternative method for instructional delivery is also considered as a "panacea in the time of COVID-19 crisis" (Dhawan, 2020, p. 7). Shifting instructions online offers flexibility that enables students to learn anywhere and anytime without in-person attendance during times of crisis.

In Malaysia, all the public and private HEIs conducted lessons via online platforms, for the first time, after the nationwide closure of educational institutions in response to the declaration of the Movement Control Order (MCO) on 18 March 2020 (Bibi Noraini & Jihan, 2020; Tang, 2020). As a result, students and instructors shifted to the online learning environment, which was considered new to most of them. Although information and communication technologies (ICTs) are integral in education, the attempts to integrate them during the pandemic posed far more challenging problems (Annamalai, 2021).

Such an unprecedented shift towards remote learning caused students to face uncertainties in coping with new ways of learning (Adedoyin & Soykan, 2020; Dhawan, 2020). Disruptions to learning due to the COVID-19 lockdown had left students feeling anxious and stressed, which, in turn, affected their academic performance (Bolotov et al., 2021; Mahapatra & Sharma, 2020; Nabil Hasan et al., 2021). Further, the abrupt change in the

teaching and learning process with extensive use of ICT tools during the pandemic had a significantly negative impact on students' learning experience (Nabil Hasan et al., 2021).

Recently, several empirical attempts explored students' learning experiences in remote contexts to determine the quality and acceptance of remote learning. HEIs are also becoming increasingly interested in understanding the challenges faced in remote contexts, which may help to develop measures to assist students overcome pandemic-related concerns. To date, with very few exceptions (Mahiswaran et al., 2020; Muhammad Ismail et al., 2020), there is a general lack of information on how remote learning due to the pandemic has affected students' learning experiences in the context of Malaysian tertiary education.

Therefore, the present study aims to fill this gap by exploring students' satisfaction with remote learning adopted by HEIs since the COVID-19. A diverse range of tertiary students across faculties, disciplines, years of study, ages, and genders from a Malaysian private HEI comprise the case study of student responses to remote learning using an online self-administered questionnaire, modelled on Ramsden's (1991) Course Experience Questionnaire (CEQ). This study also aims to provide further insights into the factors that may influence students' satisfaction with remote learning experiences. Such insights may help policymakers, university administrators, and instructors to make better choices to devise successful approaches to increase student satisfaction, responsiveness, and learning effectiveness.

LITERATURE REVIEW

Remote Learning

Remote learning and its various terms, such as online learning, e-learning, virtual learning, web-based learning, distance learning, etc., have been used interchangeably to describe the learning process in a technology-mediated environment, both synchronously and asynchronously (Singh & Thurman, 2019). In an asynchronous learning environment, the co-presence of instructors and students is required at a given day and time to participate in the online learning experience. Students can reap the benefits of digital tools and applications, such as instant messaging, online chat, share screen, online whiteboard, and video conferencing to exchange ideas and information, as well as share visuals at the same time. In contrast, asynchronous learning takes place at a time and place convenient to students. It is based on students' self-learning without reliance on others when interacting with content. It affords students a more flexible and convenient learning environment, including time for reflection before responding to learning activities (Dhawan, 2020; Singh & Thurman, 2019).

Recent decades have seen a surge of interest in online education and the evaluation of the implementation of educational technology in higher education as an alternative instructional

delivery mode. Careful instructional design and planning are essential to effective online education (Hodges et al., 2020). The COVID-19 outbreak rapidly changed the education landscape worldwide. Many students had to learn from home and in isolation from their instructors and peers (UNESCO, 2020). Accordingly, the pandemic provided a significant opportunity for students to explore learning remotely, but not one without challenges that might lessen the richness of their learning experience. Among the common issues faced by students are problems relating to technological resources, digital competence, feelings of isolation and alienation, learning support, social interaction, to name a few (Dhawan, 2020). Empirical studies conducted in Egypt (Basuony et al., 2021), India (Chakraborty et al., 2021), Saudi Arabia (Fatani, 2020), Indonesia (Amir et al., 2020), and the U.S. (Aguilera-Hermida, 2020) found that students faced a wide range of problems that affected their desire or motivation to learn remotely, in varying degrees.

As part of the consequences of the lockdown measures to curb the spread of COVID-19, hundreds of HEIs in Malaysia were closed in March 2020 (Hazlin, 2020). The HEIs shifted classes to remote learning during campus closures. Although the Malaysian government has relaxed some lockdown restrictions, many HEIs are still facing the challenges brought about by the pandemic. The effect of these changes on the development of students and their academic performance warrants more scholarly attention than it has so far received.

Students' abilities in coping with remote learning have been a fundamental concern since the outbreak of the COVID-19 pandemic due to its substantial impact on education. Students had poor attendance during online classes and lacked concentration while learning online (Bibi Noraini & Jihan, 2020). Similarly, Nabil Hasan et al. (2021) reported that students experienced various psychological problems from endless online assignments. Thus, social, psychological, and academic support became crucial to help students cope in a remote learning environment (Annamalai, 2021).

Therefore, it is vital to provide students with adequate support in times of crisis to sustain engagement, motivation, and quality of education by considering the challenges and implementing suitable solutions (Annamalai, 2021). Previous research also emphasized essential aspects from the students' perspective in consenting to the implementation of remote learning amid the COVID-19 pandemic (Baber, 2020). Hence, it is crucial to examine remote learning satisfaction during the pandemic.

This study focuses on students from a private higher education institution in Malaysia to gauge their satisfaction level by using a survey questionnaire modelled on Ramsden's (1991) reputable Course Experience Questionnaire (CEQ) with modifications as follows:

1. **Good Teaching:** Instructors normally give helpful feedback on students' progress.
2. **Clear Goals:** Students usually have a clear idea of the goal and what is expected of them in the course.
3. **Appropriate Workload:** The sheer volume of work to be done in the course means students cannot comprehend it all thoroughly (negative).

4. **Appropriate Assessment:** Instructors seem more interested in testing what students have memorised than what they have understood (negative).
5. **Emphasis on Independence:** Students are given a lot of options in the work they have to do.

The student evaluation instrument above, i.e., the Course Experience Questionnaire (CEQ), was designed to measure teaching performance and the function of the teaching faculty. Since 1992, it has become a national survey as part of the Australian Graduate Survey (AGS). Accordingly, this study adopted the original constructs in the questionnaire due to its validity and reliability with adaptations for the remote learning settings.

Table 1. Adaptation of Ramsden’s Course Experience Questionnaire (CEQ) constructs

No.	Ramsden’s constructs (1991)	Adapted constructs (2021)	Acronym
1	Good teaching	Instructors’ performance	IP
2	Clear goals	Students’ educational goals	SEG
3	Appropriate workload	Study workload	SW
4	Appropriate assessment	Online assessment	OA
5	Emphasis on independence*	-	-
6		Learning support**	LS
7		Remote learning platform**	RLP

Notes: *Item 5 “Emphasis on Independence” was not covered in the survey but as an open-ended question for more in-depth feedback. **Items 6 and 7 were added to the survey to address the remote learning context.

This study considered significant elements to address the specific needs in the context of private tertiary institutions in Malaysia – how students perceived remote learning as an emergency response when they learn from home, and how satisfied they were with remote learning given the various limitations and constraints faced by instructors and students. Hence, this study aims to gauge the pre-determined and newly identified elements through these constructs:

1. Instructors’ Performance (IP)
2. Students’ Educational Goals (SEG)
3. Remote Learning Platform (RLP)
4. Study Workload (SW)
5. Online Assessment (OA)
6. Learning Support (LS)

This study further examines the remote learning experience to achieve the two research objectives:

1. To examine the relationship between IP, SEG, RLP, SW, OA and LS towards the level of students' satisfaction with remote learning (S).
2. To examine the significant difference between IP, SEG, RLP, SW, OA, and LS towards the level of students' satisfaction with remote learning (S) based on Gender (G) and Type of Program (TP).

Students' Evaluation of Remote Learning

As the adoption of remote learning emerged as a radical solution to the problem of disrupted learning during the COVID-19 outbreak, the fundamental questions to be answered are:

1. Why do students adopt such technologies?
2. What are their motivations and concerns?
3. How satisfied are students with remote learning?

Generally, motivation is vital to embrace remote learning (Davis, 1989).

Students have different needs, expectations, varying degrees of satisfaction with their learning experiences. Student satisfaction has been a widely studied subject and a crucial topic due to the uncertainties with the shift to remote learning. Evaluation of different aspects of remote learning as favourable or unfavourable includes feelings, beliefs, and thoughts of students relevant to their learning experiences. Further, the literature review in this field suggests that several factors influence students' satisfaction with the remote learning experience.

Students' satisfaction is regarded as one of the essential motivational aspects among learners to continue learning (Griffioen, et al., 2018; Siming et al., 2015; Um & Jang, 2021). This belief has laid the foundation of the current study. As it is crucial to understand that distinct studies that share related perspectives generate comparable outcomes (Ramsden, 1991), the researchers consider literatures from the similar field to form the theoretical underpinning for current study.

In constructing the questionnaire for remote learning, the researchers referred to the established components of the Course Evaluation Questionnaire (CEQ) by Ramsden (1991). These CEQ items went through various revisions before being widely used by Australian universities that contribute to important decisions made on performance-based funding of institutions, and more recently, cognate disciplines within institutions through the Learning and Teaching Performance Fund (LTPF) (Talukdar et al., 2013).

Numerous studies were carried out in the past emphasised students' satisfaction with their learning experience in various contexts. For instance, a meta-analytic study carried out by Santini et al. (2017) revealed six key elements pertaining to the evaluation of students' satisfaction with higher education that included perceived value of educational services, resources provided to the students, service quality perception, marketing orientation, HEI identity and campus environment. Meanwhile, Siming et al. (2015) measured aspects that influenced students' satisfaction with learning by studying the correlation between students' satisfaction and teacher readiness, teacher-student relationship, experiences offered by the campus to the students along with the campus support facilities.

While these studies discussed students' satisfaction with higher education and learning in general, related findings were generated in research focusing on students' satisfaction with online learning, in specific. Um and Jang (2021) reported communications, teaching presence, learning self-management and academic self-efficacy as the factors that will lead to students' intention to continue to learn online. Similarly, Landrum et al. (2021) described aspects like self-motivation, learners and educators' responsibilities, as well as the space and time of online learning to be the students' primary considerations in evaluating their satisfaction with online classes. In general, the reviews disclose three fundamental factors that affect students' satisfaction with learning experience. The factors comprise students' personal aspects, teacher competencies along with services and facilities provided by the institution. The understanding of these elements is taken into consideration as the theoretical underpinning for the research framework developed in the present study.

Based on Ramsden (1991) and the literature review, this study gauged students' satisfaction with remote learning (S) during the COVID-19 pandemic based on the following constructs.

Instructors' performance (IP)

Given the circumstances of the COVID-19 pandemic, instructors must rapidly advance their digital competence and effectively integrate technology into the teaching and learning process (Albó et al., 2020). Within remote learning, instructors' approaches to teaching and their attitude to work lead the students to have a positive or negative impression. Several studies found that the quality of instructors has a positive impact on students' learning performance (Fatani, 2020; Ma et al., 2015). Studies also reveal that students' perceptions are affected by a host of factors, such as the potential influence on students' perceptions of the usefulness of remote learning. These factors include delivery modes of online learning, course materials, interactive class activities, online learning platforms and resources (Aguilera-Hermida, 2020; Ngampornchai & Adams, 2016).

Students' educational goals (SEG)

Remote learning offers the advantages of self-paced learning and new skills leading to lifelong learning (Dhawan, 2020). It also requires students to be motivated and disciplined. Kerr et al. (2006) validated the Test of Online Learning Success (TOOLS) that taps five constructs to assess students' remote learning experience: computer skills, independent learning, the need for online learning, dependent learning, and academic skills. Independent learning and academic skills are closely related to students having attainable educational goals and taking action to achieve them. In this study, students' educational goals are a construct that encompasses the overall approach of students to practice study skills to achieve academic goals. This aspect includes self-control, self-regulation skills, time management, multi-tasking, self-motivation/discipline, and self-evaluation that provide more readiness in remote learning settings. Previous research also found similar qualities in independent learners (Eom et al., 2006; Muilenburg and Berge, 2005; Ruey, 2010; Song et al., 2004; Waschull, 2005; Yukselturk & Bulut, 2007).

Remote learning platform (RLP)

While digital learning platforms afford many advantages, the extent to which they meet the needs of individual students requires more in-depth research. Studies showed digital technologies and online tools resulted in positive outcomes for student satisfaction (Almekhlafy, 2020; Fatani, 2020). However, students may lose interest or motivation to learn because there is no physical contact and interaction with their instructors or peers in remote contexts (Chaturvedi et al., 2021; Lazarevic & Bentz, 2020).

Study workload (SW)

The excessive workload affects mental health and induces stress among students (Aristovnik et al., 2020). Several studies revealed that students reported more stress during remote learning (Chakraborty et al., 2021; Fawaz & Samaha, 2020), but the findings of Lazarevic and Bentz's (2020) study suggested otherwise. Their study showed that students in a face-to-face environment were more stressed than their counterparts in an online learning environment.

Online assessment (OA)

Student assessment is an integral aspect of instruction (Rodríguez et al., 2019). It has a direct link with the achievement of learning outcomes by enhancing learning and gauging the students' degree of progress (Guangul et al., 2020; Kauffman, 2015).

Learning support (LS)

Student support crucially determines the success of remote learning experiences (OECD, 2020). There are many ways to support students. In academic and social domains, instructors, peers, and family support influence attitudes towards learning (Barbera et al., 2013; OECD, 2020; Rajabalee & Santally, 2020). In terms of learning support, previous research showed that satisfaction of learners increased with structured online courses (Song et al., 2004), interactive delivery using constructivist instructional design (Muilenburg & Berge, 2005; Ruey, 2010), relevant content applicable with practical significance (Ruey 2010), and constructive feedback from instructors (Eom et al., 2006; Muilenburg & Berge, 2005; Ruey, 2010; Song et al., 2004).

Research Framework

Figure 1 shows the research framework based on data in previous studies.

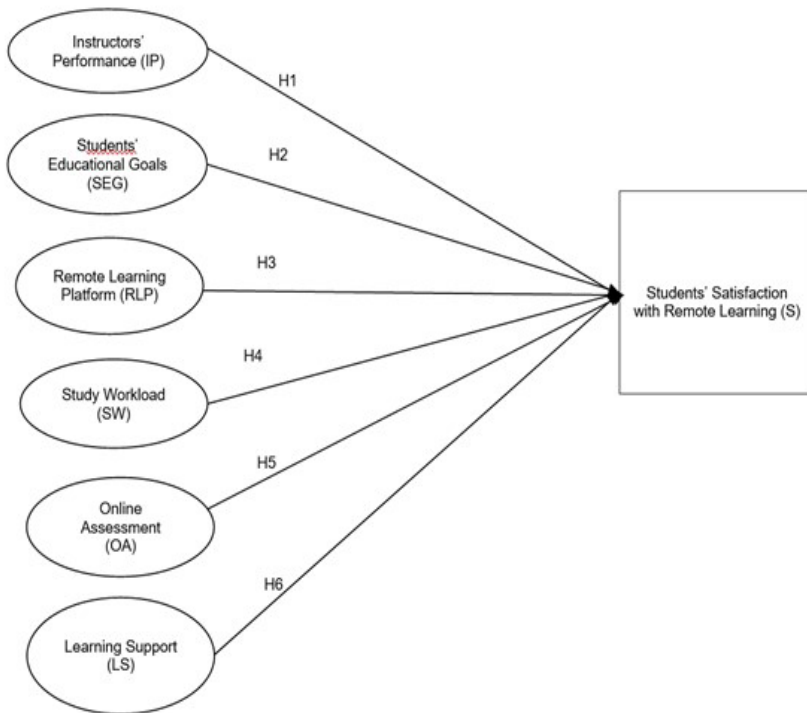


Figure 1. Research framework (compiled by author based on data in previous studies)

Hypothesis

H1: Instructors' performance (IP) significantly influences students' satisfaction with remote learning.

H2: Students' educational goals (SEG) significantly influence students' satisfaction with remote learning.

H3: Remote learning platform (RLP) significantly influences students' satisfaction with remote learning.

H4: Student workload (SW) significantly influences students' satisfaction with remote learning.

H5: Online assessment (OA) significantly influences students' satisfaction with remote learning.

H6: Learning support (LS) significantly influences students' satisfaction with remote learning.

METHOD OF THE STUDY

In general, this study used the quantitative method of a survey with six major constructs. This highly relevant contextualised questionnaire constructs and the questionnaire items were developed based on previous studies and modified to cater to the current research feature of emphasising remote learning determinant factors, particularly after the pandemic.

A private higher education institution, Universiti Tunku Abdul Rahman (UTAR) was selected due to several criteria. First, it is a not-for-profit higher education institution that offered more than 130 academic programmes to its 20,000 students. Secondly, the university had responded fast to enable a smooth transition from physical to virtual learning environment requires seamless digital platform, infrastructure, and broadband internet to ensure uninterrupted learning processes. Thirdly, the university had deployed 100% Online Teaching and Learning (OTL) mode of study including online assessment except for medicine and health science related programmes that required physical sessions.

The questionnaire consisted of two sections, with varies close-ended and open-ended questions. Section A comprised descriptive data, such as gender, age, year of study, type of program, and Internet connectivity during remote learning. Section B comprised 32 items with seven constructs to examine students' satisfaction on the instructors' performance (IP), students' educational goals (SEG), remote learning platform (RLP), study workload (SW), online assessment (OA), learning support (LS) and dependent variable of students'

satisfaction with remote learning (S). These items were measured by a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Table 2 shows the summary of the development of the items for the questionnaire.

Before the pilot test, the questionnaire was reviewed by experts in language, teaching and learning-related research for content. In July 2020, after revisions on the item sentence structure, terms used and grammar checks, the questionnaire was piloted among 56 students within a faculty to examine the reliability of each item. The Cronbach Alpha value of 0.940 proved the reliability of the questionnaire. Table 3 shows the Cronbach Alpha value for each construct to be more than 0.8 and that the questionnaire was valid for the actual test. By September 2020, the finalized survey in the Google form was distributed via email to more than 10,000 students of a private HEI from two campuses located in Perak and Selangor. A total of 2,097 completed questionnaires were collected, and the data were input into the Statistical Package for Social Sciences (SPSS) version 25.0 to generate the descriptive and inferential analysis to address the research objectives.

Table 2. Summary of the item development for the questionnaire

Section	Construct	No. of item
A	Descriptive data	5
B	Instructors' Performance (IP)	6
	Students' Educational Goals (SEG)	6
	Remote Learning Platform (RLP)	4
	Study Workload (SW)	4
	Online Assessment (OA)	5
	Learning Support (LS)	5
	Students' Satisfaction (S)	2

Note: Table compiled by author based on data from previous studies

Table 3. Summary of the Cronbach alpha value for the questionnaire

Construct	No. of item	Cronbach alpha
Overall	32	0.940
Instructors' Performance (IP)	6	0.890
Students' Educational Goals (SEG)	6	0.829
Remote Learning Platform (RLP)	4	0.845
Study Workload (SW)	4	0.858
Online Assessment (OA)	5	0.889
Learning Support (LS)	5	0.874
Students' Satisfaction (S)	2	0.869

Table 4 summarises the descriptive data of gender, age, year of study, type of programme and Internet connectivity during remote learning. There were more female (66.8%) than male (33.2%) students. The majority of students were in Year 1 (47.8%), followed by Year 2 (29.9%) of their studies, and aged between 18 and 20 years old (70.6%). Slightly less than half of the students (47%) majored in the Social Science programme, followed by the Foundation programme (30%). The Internet connection during online classes reported an average of (52.9%) or a positive (34.3%) rating among most students. Overall, the Internet connection speed varies depending on the students' geographical location.

Table 4. Descriptive statistics ($N = 2,097$)

Characteristics	Frequency	Percentage
Gender		
Male	696	33.20
Female	1401	66.80
Age		
18–20	1481	70.62
21–23	541	25.80
24 and above	75	3.58
Year of Study		
Year 1	1003	47.83
Year 2	627	29.90
Year 3	331	15.78
Year 4	108	5.15
Year 5	28	1.34
Type of Programme		
Foundation	629	30.0
STEM	450	21.46
Social Science	986	47.02
Postgraduate	32	1.53
Internet Connectivity		
Very poor	18	0.86
Poor	154	7.34
Average	1110	52.93
Good	720	34.33
Very good	95	4.53

DATA FINDINGS

Mean Analysis

Table 5 illustrates the mean and standard deviation scores for each item for the six constructs, i.e., instructors' performance (IP), students' educational goals (SEG), remote learning platform (RLP), study workload (SW), online assessment (OA) and learning support (LS). The mean score of students' perceptions of their instructors' performance was 3.84, where the students agreed that their instructors put in efforts to understand difficulties they might be having in coursework during remote learning. As to students' educational goals, students confirmed that it was easy to access the course materials provided during remote learning (mean = 3.75), and the online learning platform was user-friendly (mean = 3.68).

As to study workload, students felt comfortable when learning remotely at their own pace (mean = 3.68). The students found that online examination questions were more challenging than the regular final examination questions (mean = 4.07). Learning support obtained by the students was particularly significant in terms of communication with their instructors using various channels (e.g., WhatsApp, Microsoft Teams, email and Facebook) (mean = 3.93).

Table 5. Mean and standard deviation for each item

Construct	Item	Description	Mean	SD
Instructors' Performance	IP1	My lecturers provided clear instructions in remote learning settings.	3.76	0.748
	IP2	My lecturers used teaching tools to make lessons interesting during remote learning.	3.63	0.813
	IP3	My lecturers performed well in engaging students during lessons in remote learning.	3.72	0.784
	IP4	My lecturers exercised effort to understand the difficulties I might be having with coursework during remote learning.	3.84	0.791
	IP5	My lecturers put in a lot of time commenting on my progress or work during remote learning.	3.63	0.836
	IP6	I felt I had learned well from my lecturers during remote learning lessons.	3.56	0.902

(Continue on next page)

Table 5. (Continued)

Construct	Item	Description	Mean	SD
Students' Educational Goals (SEG)	SEG1	I usually had a clear idea of the expected student learning time in remote learning.	3.50	0.780
	SEG2	I usually had a clear idea about the standard of work expected of me in remote learning.	3.50	0.795
	SEG3	It was easy for me to access the course materials required in remote learning.	3.75	0.807
	SEG4	My lecturers provided clear instructions in support of my remote learning.	3.68	0.772
	SEG5	I preferred synchronous (real-time) to asynchronous (delayed) delivery for my online lessons.	3.56	0.862
	SEG6	Both synchronous and asynchronous modes helped me achieve my goals in remote learning.	3.69	0.778
Remote Learning Platform (RLP)	RLP1	I enjoyed remote learning using the platform(s) required by my lecturers.	3.55	0.884
	RLP2	I could participate effectively in discussions using the remote learning platform.	3.47	0.859
	RLP3	I could submit my answer scripts promptly using the remote learning platform.	3.67	0.807
	RLP4	I found the online platform used in my courses to be user-friendly.	3.68	0.793

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Table 5. (Continued)

Construct	Item	Description	Mean	SD
Study Workload (SW)	SW1	I could manage my study workload during the remote learning period.	3.44	0.892
	SW2	I was comfortable about learning remotely at my own pace.	3.68	0.927
	SW3	My lecturers assigned reasonable study workload during remote learning.	3.48	0.878
	SW4	I could cope with the remote learning study workload required by my lecturers.	3.51	0.826
Online Assessment (OA)	OA1	I preferred answering in a handwritten form to typing the answers during the Final Assessment (FA).	3.26	1.131
	OA2	I found the Final Assessment (FA) questions more difficult than the regular Final Examination questions.	4.07	0.910
	OA3	I had no problem completing all my time-restricted Final Assessment (FA) tasks on time.	2.89	1.106
	OA4	My lecturers were more interested in testing what we have understood than what we have memorized in remote examination.	3.74	0.824
	OA5	I felt the Final Assessment (FA) questions were closely linked to the learning outcomes of the courses.	3.34	0.888

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Table 5. (Continued)

Construct	Item	Description	Mean	SD
Learning Support (LS)	LS1	I had support from my family members during the remote learning period.	3.66	0.877
	LS2	I had my lecturers' support during the remote learning period.	3.67	0.728
	LS3	My lecturers were available for consultation during remote learning.	3.80	0.666
	LS4	I communicated with my lecturers using various channels (e.g., WhatsApp, MS Teams, email, and Facebook).	3.93	0.711
	LS5	My peers and I supported each other when working within a group remotely.	3.78	0.765

Correlation Analysis

Table 6 reports the correlation between instructors' performance, students' educational goals, remote learning platform, study workload, online assessment and learning support with students' satisfaction in remote learning. The correlation analysis provided an affirmative answer to Hypothesis one until Hypothesis six (H1 to H6). The significant value ($p = 0.000 < 0.005$) for all independent variables revealed that instructors' performance, educational goals, remote learning platform, study workload, online assessment and learning support have significant relationships towards students' satisfaction in remote learning.

Remote learning platform was found to have the most significant positive relationship ($r = 0.733$; $p = 0.000$) toward students' satisfaction level in remote learning. The students enjoyed remote learning via the platform provided by the institution, i.e., Microsoft Teams, as they found it user-friendly. Students felt comfortable learning remotely at their own pace because they could watch the recorded video content asynchronously and as many times as they wished following their learning needs.

As to educational goal attainment, the students claimed that they had a clear idea of their learning time, expected standard of work, and easy access to information remotely with clear instructions provided by the instructors.

Furthermore, the students were satisfied with the increased efforts of their instructors in delivering knowledge during lecture and tutorial classes. Accordingly, the students developed confidence as independent learners without the physical presence of instructors.

However, the online assessment variable contributed poorly to students' satisfaction ($r = 0.419$). Moreover, the mean construct for OA was the lowest relative to other constructs. Some students claimed difficulties in their time-restricted Final Assessment (FA) tasks on time. In this mode of assessment, students felt that their instructors were more interested in assessing their understanding of specific topics, and the questions would demand detailed analysis on the students' part.

Table 6. Correlation analysis of students' remote learning satisfaction

Variable	Mean	Correlation (r)	Sig. (p)
Instructors' Performance (IP)	3.69	0.658	0.000
Students' Educational Goals (SEG)	3.61	0.704	0.000
Remote Learning Platform (RLP)	3.59	0.733	0.000
Study Workload (SW)	3.53	0.699	0.000
Online Assessment (OA)	3.46	0.419	0.000
Learning Support (LS)	3.77	0.588	0.000

Note: Significant level at 0.05

Multiple Regression Analysis

The multiple regression analysis examined the strength of the relationship between the six independent variables and students' satisfaction with remote learning given the importance of each independent variable to the model. Based on Table 7, R refers to the multiple correlation coefficients to measure the quality of independent variables towards dependent variables. The R-value of 0.808 indicated a strong relationship between IP, SEG, RLP, SW, OA and LS towards students' satisfaction in remote learning. R^2 refers to the coefficient of determination. The R^2 value of 0.653 indicated the proportion of variance in students' satisfaction towards remote learning and recorded 65.3% of the IP, SEG, RLP, SW, OA and LS variables.

Table 7. Summary of model

Model	R	R^2
1	0.808a*	0.653

Note: *a refers students' satisfaction

The F-ratio shown in the Table 8 indicated that all IP, SEG, RLP, SW, OA and LS variables were statistically significant in influencing students' satisfaction towards remote learning, $F(6, 2090) = 654.89, p = 0.000$ proved that the regression model is a good fit of the data set.

Table 8. ANOVA^a

Model	df	F	Sig.
Regression	6	654.89	0.000
Residual	2,090		
Total	2,096		

Note: ^aa refers students' satisfaction

Table 9 illustrates that all independent variables (IP, SEG, RLP, SW, LS) significantly influenced the students' satisfaction with remote learning ($p = 0.000 < 0.005$) except for OA ($p = 0.079$) in the model. This was similar to that found in Table 6 where online assessment had the lowest correlation.

Table 9. Coefficients^a

Model	Beta	<i>t</i>	Sig.
(Constant)	-0.416	-5.041	0.000
IP mean	0.160	6.570	0.000
SEG mean	0.232	7.680	0.000
RLP mean	0.353	15.412	0.000
SW mean	0.248	11.970	0.000
OA mean	0.039	1.759	0.079
LS mean	0.082	3.243	0.001

Note: ^aa refers to students' satisfaction.

DISCUSSION

The sudden outbreak of COVID-19 prompted HEIs to shift to remote learning at an unprecedented pace and scale. Abrupt changes can disrupt students' learning process and motivation. Evaluating and improving students' experiences in the context of remote learning have, therefore, become a major concern for both academics and educators alike. This study presents the factors that influence students' satisfaction towards remote learning during the pandemic. The findings of this study indicate that the six factors under consideration: instructors' performance, students' educational goals, online learning platform, study workload, online assessment, and learning support all have a positive relationship with the overall satisfaction towards remote learning as supported by previous

studies. The correlation analysis showed that the major influence on students' satisfaction was the online learning platform, followed by students' educational goals, with online assessment having the lowest correlation with insignificant coefficient.

The findings were consistent with previous studies by Sobaih et al. (2021) and Behforouz et al. (2021) that showed a positive student learning experience with digital technologies and online tools in terms of accessibility and effectiveness. On the contrary, some scholars (Aguilera-Hermida, 2020; Kulal & Nayak, 2020) stated that students lacked motivation due to their lack of confidence in technology during the shift to remote learning. The results of this study suggest that the university relies on the subscribed or self-developed online platform for students to use at ease, particularly during crucial moments of online script submissions and the release of question papers. A comprehensive and multi-functional learning management system that is reliable and interactive makes remote learning more manageable for students. It also enables smooth online assessment processes that avoid students being worried about the failure to submit on time, anxiety over time-restricted examinations, dysconnectivity due to system failures, or encountering any delay or mishandling of online examination tasks resulting in unsatisfactory feedback from students.

Remote learning offers the advantages of self-paced learning online, and students can study anywhere, at any time (Dhawan, 2020). In the present study, students reported they were satisfied with easy access to course materials and could carry out synchronous and asynchronous activities to achieve the specific learning outcomes. Gopal et al. (2021) explained that students' expectations have a positive effect on their satisfaction and academic achievement. Similarly, Kulal & Nayak (2020) and Gustiani (2020) found that students had positive experiences with online learning because of the positive impact the latter has on their learning styles. However, new students who joined the university during the pandemic may not be aware of the syllabus information, assignment brief, and requirements of specific courses. Therefore, there is a need for the university and instructors to strengthen the instructions and communication channels pertaining to student learning time and work quality during the first few virtual classes.

While most students in the present study found themselves coping well with remote learning at their own pace, only some students found the study workload manageable or reasonable. Although students in the present study did not indicate anxiety or stress, they were concerned about their academic achievement via online learning. There is strong evidence that university students suffer from persistent problems that threaten their mental health and well-being. Mental health issues are the main obstacles to students' learning process. The impact of campus closures in response to the COVID-19 pandemic demonstrated the complex link between stress, well-being, and academic performance (OECD, 2020). Several studies have shown that increased workload leads to increased stress and even burnout. For example, in a survey conducted across public and private universities in Malaysia, Moy and Ng (2021) found that many university students reported

higher stress levels in their academic life during the pandemic. Sundarassen et al. (2020) noted that university students in Malaysia suffered stress because of the rapid transition to online learning and uncertainties related to their academic performance. In this regard, the university and instructors should always reach out to students when handling assessments and monitoring their work relationships with others.

Assessment is an essential component of constructive alignment of remote learning. Students want a reward for their hard work and efforts after completing their assignments. In the present study, the online examination coined as Final Assessment was a major concern for most students who found it more difficult than the conventional physical final examination, due to its time-bound nature. With regards to academic integrity, students were prohibited to seek help or collaborate with others. In turn, students resorted to open resources, citation, referencing, Turnitin similarity checks, creating high expectations for open-ended questions. Some students felt that the online examination was challenging when the duration was short (merely 2 to 4 hours including submission time) for them to complete several tasks such as filling out details, scanning each answer with their scanner or smartphone, arranging scripts, and submitting it online before the end of the stipulated time. As previous studies have pointed out, students felt insecure with the new norm of open-ended examination (Bolatov et al., 2021; Mahapatra & Sharma, 2020) owing to its vulnerability to academic dishonesty (Guangul et al., 2020). In this regard, Guangul et al. (2020) suggested combining multiple assessment methods, for example, a report submission with an online presentation to reduce academic dishonesty. In addition, the pedagogical practices employed in online courses differ from those in face-to-face courses. Thus, it is important to re-assess assessment strategies in an online learning environment as they should be distinguished from those used in traditional face-to-face classes.

In the present study, the students were satisfied with the instructors' delivery and efforts to increase engagement in a remote learning environment, aided by educational technology and digital competencies. The results supported previous research by Fatani (2020) and Ma et al. (2015). Trained instructors provide a favourable learning environment and substantial impact on remote learning. The results of this study suggest that feedback from students on remote learning improves virtual learning during and after the pandemic. Indeed, it is vital to determine the youngsters' know-hows during the pandemic and attend to their innovative resolutions to undertake this new norm and stay in touch with each other (Olmos-Gómez, 2020). There is a high possibility that remote learning is here to stay, and more specific research is required to enhance and revamp learning analytics, curriculum design, assessment criteria, and accessibility for continuous quality improvement (CQI).

Students used online platform to conduct their virtual lessons supported by guidance from course instructors and support services provided by the university. While social media and various online channels of communication are conducive for remote learning from the students' perspectives, students now have higher expectations for their requests to be answered since there is a fine line between what the office hours are during remote learning. In the long run, this may lead to fatigue for both instructors and students to

juggle between personal space and time vis-à-vis the workplace requirement after office hours (9 am to 5 pm). Future studies should address this issue by examining how this new form of communication impacts both students and instructors and managing the needs and demands for mutual benefit.

CONCLUSION

The results of the present study indicated students' overall satisfaction with remote learning during the pandemic. Policymakers, university administrators, and instructors could benefit from this study as it explored several factors that shape students' satisfaction and affect their learning effectiveness in a remote learning environment. Accordingly, these factors must be considered in planning and designing online courses. This way, students can utilise the opportunities offered through remote learning and improve their quality of knowledge.

Remote learning is an effective educational alternative in times of crisis. However, several issues warrant attention. Given the constraints of Internet coverage in suburban and rural across Malaysia, HEIs must ensure equitable education to all by giving special consideration for local and international students faced with poor network connectivity, low device compatibility, and those who cannot afford the high cost of online data. In addition, future studies should address mechanisms such as the duration of time-bound online examination, environmental factors during the online assessment, proctoring tools for invigilation, non-adherence to academic integrity or cheating in online examination, and the provision of paid services in commercial websites to complete the online examination.

Moving forward, to make remote learning fun and stimulating, learners required more asynchronous tools (e.g., the live and pre-recorded interactive video clips) to facilitate learning ubiquitously during revision and Internet disruption. The culture of improving e-learning practices required educational, pedagogical, and technological initiatives from staff, for instance, innovative pedagogies with aided simulated course-related activities and interactive software, learning methodology, instructional design, interactive features, game-based lessons with a deeper understanding of human psychology. All these efforts would enhance positive responses from students with empowerment, readiness, and tenacity in overcoming challenges in rapid digital transformation. Meanwhile, students must be empowered to do their level best to mitigate the immense disruption of the pandemic in the remote learning circumstances.

One of the limitations of this study is the data collected from only one private HEI, and as such caution, must be exercised in generalising the results. In future studies, generalised results may be obtained by including students in public HEIs. In conclusion, future research should also cover the instructors' perspectives for a broader understanding of issues in teaching within a remote learning environment.

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