

Lessons from Covid-19 Pandemic: Students' Remote Learning Preferences in Malaysia

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KEYWORDS:

Students' preferences
Higher education
Remote learning
Covid-19 pandemic

CITATION:

Grecilda Augustine, Aisyah Nazamud-din, & Lisbeth Sinan Lendik. (2022). Lessons from Covid-19 Pandemic: Students' Remote Learning Preferences in Malaysia. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7(5), e001521. <https://doi.org/10.47405/mjssh.v7i5.1521>

ABSTRACT

The unexpectedly disruptive period is currently being reinforced with improved ideas and approaches to meet the needs of the pupils. With pandemic tiredness and digital exhaustion being highlighted, a better understanding of students' learning preferences must be updated regularly during unprecedented times. This mixed-method study seeks to identify and explore students' preferences based on their remote learning experiences in a public university in Malaysia. An online survey was used to gather the data for the analysis to identify the students' preferences over the platform used, assessment types, and schedule preferences. In addition, the students' suggestions were gathered to get more insights from their perspectives. The results revealed students preferred Google Meet, WhatsApp Messenger, and Google Classroom as the medium for delivery. On the other hand, the students favoured shorter time spent and early time slots for online class scheduling. They also preferred quizzes as the most preferred type of assessment. Lastly, students suggested considering various factors to conduct successful remote learning namely empathy from the lecturer, student engagement, students' readiness, students' accessibility, content delivery, flexibility, and motivation. Conclusively, the implication of this study will contribute to the body of the literature on remote learning during a pandemic. Moreover, educators in tertiary education could utilise the students' preferences as feedback to enhance their teaching and learning delivery during remote learning. This study was limited by the absence of lecturers' preferences and suggestions. Future studies that investigate other perspectives could create a common ground between educators and learners.

Contribution/Originality: This study contributes to the existing literature on students' preferences during remote learning in Malaysia. This study helps to understand the students' needs and interests to ensure the efficiency of remote learning.

1. Introduction

Since the Covid-19 pandemic changes the education landscape worldwide, studies have been conducted to understand students' and educators' preferences during remote learning ([Muthuprasad et al., 2021](#); [Coman et al., 2020](#); [Khalil et al., 2020](#); [Ting & Abdul Aziz, 2021](#); [Rotas & Cahapay, 2020](#)). The sudden disruptive phase is now being supplemented with better ideas and approaches to cater to the students' needs. As other factors such as "pandemic fatigue" or "digital fatigue" come into the picture, a better understanding of the students' learning preferences needs constant updates. Educators and students alike need to be cooperative and flexible to enable impactful learning experiences to take place. However, many factors influence the success of online learning.

According to [Bao \(2020\)](#), when students are self-isolated at home, they frequently face issues such as a lack of self-discipline, appropriate learning resources, or conducive learning surroundings. The lack of good learning attitudes can be seen as one of the main problems faced by students when learning online. However, the issues stated may not be able to depict the reality of every student since it is a case study. The differences in terms of socio-economic background and digital divides could influence the students' ability to cope with their studies. While other students have the advantage to access the internet for online classes, students in rural and remote areas often find this new learning method a challenge due to insufficient internet access ([Mushtaque et al., 2021](#)). Poor internet connection is the biggest distraction faced by both learners and educators during the pandemic.

Despite the hindrances faced in remote learning, institutions remain open to ensure the continuance of education that is deemed necessary. While institutions are trying their best to adapt to the situation, more than ever, students' preferences during online classes need to be brought to the forefront. Whether online learning is done asynchronously or synchronously, the receivers need their opinions and voices to be constantly valued and heard by educators and the institution's management. Moving forward, continuous revisions are needed to improve students' learning experiences since academia is expected to undergo several changes after the pandemic. The value of creating a conducive learning environment has long been acknowledged by educators and policymakers. Despite that, events like the unpredictable Covid-19 pandemic forces everyone to be adaptable and resilient when facing such consequences.

The current study attempts to contribute to existing studies by identifying and examining students' remote learning preferences after more than a year since the start of the Covid-19 pandemic. With new platforms or applications being introduced online to cater to the growing demand, students' preferences may differ compared to a year ago. What works for some may not be ideal for others since many factors influence each students' learning engagement. Thus, the input from this study can be useful in determining the learning environment for online classes to promote effective learning. This paper presents the background, related literature, methods used, results from the online survey, and discussions before being concluded.

2. Literature Review

In the phase of dealing with the Covid-19 pandemic, the education system is experiencing an immediate shift mainly in the aspect of its teaching delivery. The sudden

shift revealed some weaknesses particularly the inequalities in education faced by students from various socioeconomic backgrounds (Morgan, 2020). To cope with the new norm, remote learning has become more familiar and are frequently mentioned from every level across education fields as they are deemed the prime solution to sustain learning within the constraints of living in a pandemic (Azubuike, Adegboye & Quadri, 2021; Rotas & Cahapay, 2020; Ali, 2020; Wargadinata, Maimunah, Dewi & Rofiq, 2020; Rizaldi & Fatimah, 2020). The term Emergency Remote Learning (ERT) was coined by Hodges et al. (2020) and it is defined as the temporary shift from instruction delivery to an alternative due to a crisis. Rahiem (2020) stated that learning remotely is a mixture of technological learning media and pen and paper methods, and this includes blended learning in the picture.

Despite the challenges, students with favourable situations at home can focus more than face-to-face lectures (Selvaraj, Vishnu, KA, Benson & Mathew, 2021). Nonetheless, research has shown that both students and educators are experiencing major challenges that affect their physical and mental health wellbeing amid experiencing online education during the Covid-19 pandemic (Selvaraj et al, 2021; Renfrew, Bradshaw, Burnett, Byrom, Entwistle, King, Olayiwola & Thomas, 2021; Maqableh & Alia, 2021). This is because the approach affects knowledge transfer and learning efficacy (Selvaraj et al, 2021). In a study conducted by Maqableh and Alia (2021), the major challenges in online learning faced by students are the reduced focus due to many distractions at home, abundant workload when compared to face-to-face learning, issues with technology and internet connectivity as well as inadequate support from people around them. Furthermore, Wang et al. (2022) found that Covid-19 presented learning obstacles, particularly for adolescents, because of changes in educational platforms. The stress in fulfilling the demands of distance learning may cause students to dwell with psychological issues and loneliness.

Recent studies have delved more into students' and lecturers' preferences on the conduct of online education. Muthuprasad et al. (2021) mentioned several suggestions from students on the conduct of online learning. Firstly, long-duration classes would cause cognitive and physical strain. Teachers are preferred to possess high proficiency in computer and internet literacy. Moreover, lecturers are advised to consider the gadget used for the students to participate in the online class and prepare the lesson that is suitable to be experienced with the gadget in use. Recorded videos are better to be pre-recorded as the students can have access to it conveniently. Next, there is a need for the teacher to acquire strong communication and presentation skills when using multimedia content. Lastly, students prefer collaborative learning spaces and meaningful activities to keep them engaged. Another study highlighted the efficacy of the Zoom application in providing a satisfying level of conduct in learning when compared to Facebook and YouTube (Saha, Dutta & Sifat, 2021). The study further discussed that most students in India are utilizing mobile phones to participate in distance learning due to low socioeconomic status and this has caused them to face extreme strain due to limited mobile data (Saha et al, 2021).

In Malaysia, undergraduates prefer pre-recorded lectures in Google Classroom and YouTube the most because this approach provides ample time for them to listen to the lecture despite having trouble with internet connectivity (Chung, Subramaniam & Dass, 2020b). Meanwhile, Chung, Mohamed Noor, and Mathew (2020a) discovered that students mostly utilized the university's LMS to download notes, learning materials, and to complete quizzes. However, in another study, the campus' LMS ranked second, and

Google Classroom ranked first as the most preferred LMS among the students (Saidi, Sharip, Abd Rahim, Zulkifli & Md Zain, 2021). Preferences on chat applications include WhatsApp and Telegram being the most preferred by lecturers and students (Saidi et al., 2021).

Therefore, in the present study, the researchers investigate the students' preferences on remote learning, specifically on the selected platforms, types of assessments, class schedules as well as further suggestions to improve remote learning during the Covid-19 pandemic. Research questions of the study are as follows:

- i. What are the platform preferences of the undergraduates who are experiencing remote learning for class delivery, mode of communication, and online assessments?
- ii. What are the assessment type preferences of the undergraduates who are experiencing remote learning?
- iii. What are the schedule preferences of the undergraduates who are experiencing remote learning?
- iv. What are the undergraduates' suggestions to improve their remote learning experience?

3. Methodology

3.1. Participant

The participants of this study were 152 diploma students from a public university in Malaysia, aged between 18 and 23 years old. From the total, 110 of the participants were female and 42 were male. During the semester, 90 participants attended their online classes in the city, 28 in small towns, while 21 and 13 participants had their online classes in rural areas and on the university campus respectively.

3.2. Design and instrument

A mixed-method explanatory design was used in this study. A questionnaire consisting of both close-ended and open-ended items was designed to gather the information from participants who were attending online classes during the March to August 2021 semester. The questionnaire was administered through an online survey using Google Forms in June 2021. Every participant had to provide their consent in the online survey before responding to the questionnaire. The participants were invited through messaging applications namely WhatsApp and Telegram where the link to the Google Forms was included. Participation in this study was voluntary.

3.3. Analysis

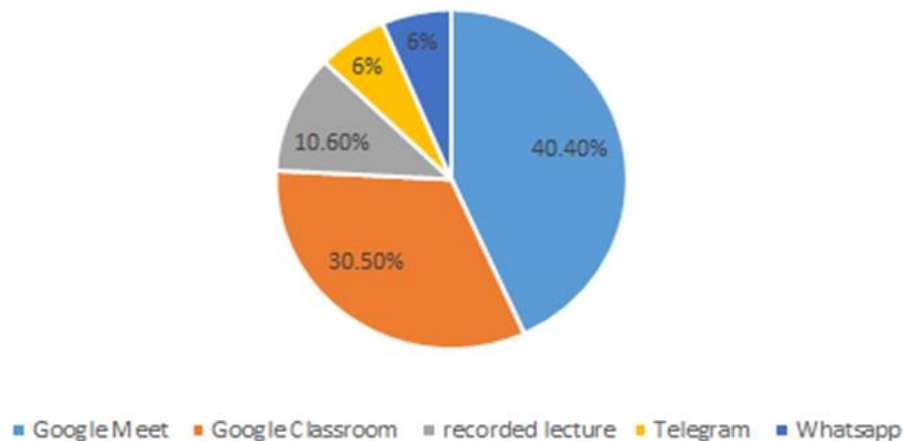
The analysis for the questionnaire items was analysed using descriptive analysis of percentage, presented by pie charts and likert scales. The analysis was conducted referring to Muthuprasad et al. (2021) in his method of analysis of a study with the same aim and variables. Similarly, data obtained through the last open-ended question were analysed using content analysis by adapting the said study. First, the students' responses from the survey were extracted and organised based on similar content words. Then, the authors revisited the data and referred to the related literature to code and finalise the

categories. Any discrepancies were resolved through continuous evaluation of the data before generating the final themes.

4. Result

Based on Figure 1, the most preferred platform for online class delivery was Google Meet (40.4%) followed by Google Classroom (30.5%), recorded lecture (10.6%), Telegram (6%), and WhatsApp (6%). Based on the open-ended responses, the undergraduates chose Google Meet as the most preferred platform because it was user-friendly when compared to Webex and Zoom. Another respondent stated that by using an asynchronous platform like Google Meet, students could communicate and ask questions directly to their lecturer.

Figure 1: Students' most preferred platform for online class delivery



Google Meet is the easiest platform to use, it's not confusing like Webex and Zoom -Respondent 1

Because it is easy to communicate and can ask directly during lecture - Respondent 2

Figure 2 illustrates the preferred mode of communication among the students. Undergraduates ranked WhatsApp application (80.8%) as their most preferred mode of communication while Telegram (10.6%) and Google Classroom (8.6%) respectively ranked the second and the third most preferred platforms. As supported by the open-ended question, the respondents explained WhatsApp was selected as the most preferred option because the messages were delivered fast and it used the least amount of data when compared to other applications. Other reasons include, WhatsApp was familiar to everyone and they felt almost the same as talking in reality without being face-to-face.

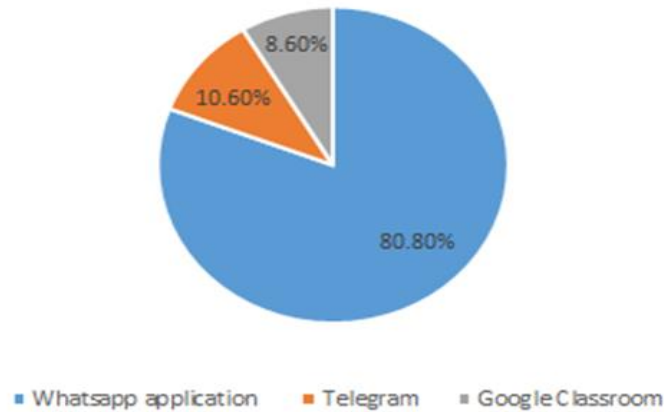
WhatsApp will be my favorite mode of communication because the message can be delivered so fast and use least of data - Respondent 3

Everyone has Whatsapp - Respondent 4

Because WhatsApp is the most used app by everyone. We always use it - Respondent 5

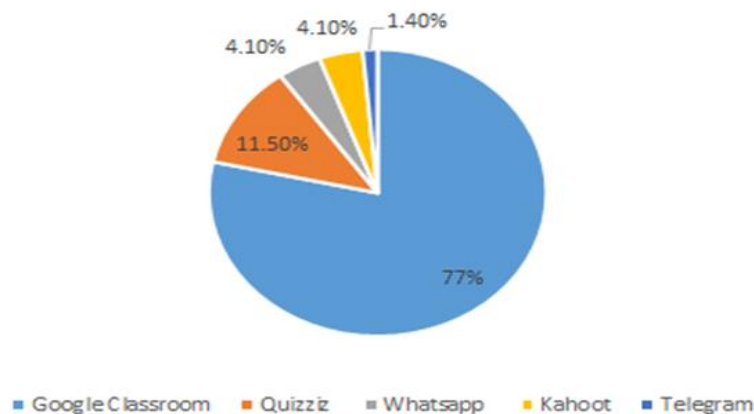
I choose WhatsApp because it's an easy way to communicate with each other and it's almost the same as talking in real life but we can't see each other's faces - Respondent 6

Figure 2: Preferred mode of communication



On the other hand, Figure 3 portrays the platform preferences of the undergraduates for online assessments. 77% of the respondents prefer Google Classroom as the platform, followed by Quizziz (11.5%), WhatsApp (4.1%), Kahoot (4.1%), and Telegram (1.4%). In response to the open-ended questions, the respondents preferred Google Classroom as the best platform for online assessment because it was easy to access the materials for the assessment and there would be reminders on the date of the assessment in Google Classroom.

Figure 3: Students' most preferred platform for online assessments



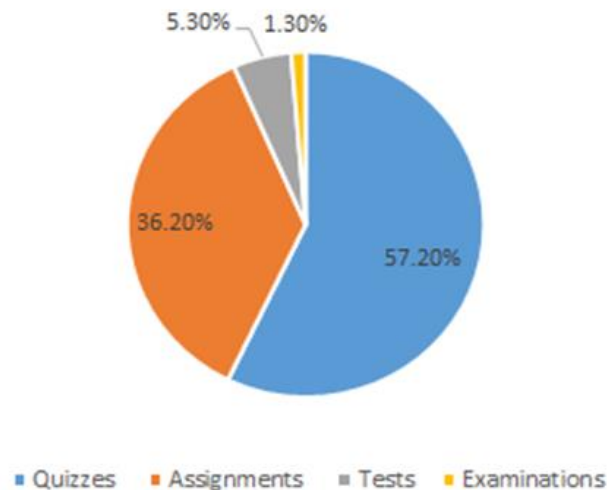
Because the student will easily get access to any assessments if it's uploaded in google classroom and google classroom will remind students via email if there's any assessment that is due soon - Respondent 7

It's easy to download assessments - Respondent 8

Because Google Classroom always notify me if I missed or my due date of assignments is nearing - Respondent 9

To identify the assessment type preferences of the undergraduates, Figure 4 is presented. 57.2% of the respondents preferred quizzes as their assessment in an online distance learning. The second in rank was assignments (36.2%), tests (5.3%), and examinations (1.3%). Responses from the open-ended section indicated the reasons the undergraduates preferred quiz the most. Quizzes were easy, and applications like Quizziz had interesting graphic interfaces that could boost their motivation. Quizzes were also found to be more fun than assignments and examinations.

Figure 4: Students' most preferred types of assessments



Quizzes are easy - Respondent 10

I may like the quizzes that can be conducted in Quizziz because they have an interesting graphic so that can boost my mood to answer all the questions - Respondent 11

Quiz is much more fun compared to assignments and exams - Respondent 12

In terms of which type of assessment that assisted them the most in understanding the lessons in an online class, a 5- Likert Scale ranging from strongly disagree to strongly agree was provided in the questionnaire.

Table 1 presents the most preferred types of assessment to sustain understanding during online lessons. Based on the 5-Likert scale, the respondents agreed that quizzes were the most helpful in understanding lessons ($M=4.126$, $SD=.803$). This was followed by examinations ($M=3.954$, $SD=.760$), assignments ($M=3.934$, $SD=.830$), and tests ($M=3.861$, $SD=.841$). Conclusively, all types of assessments were designed to aid the lessons, with quizzes being the most preferred tool.

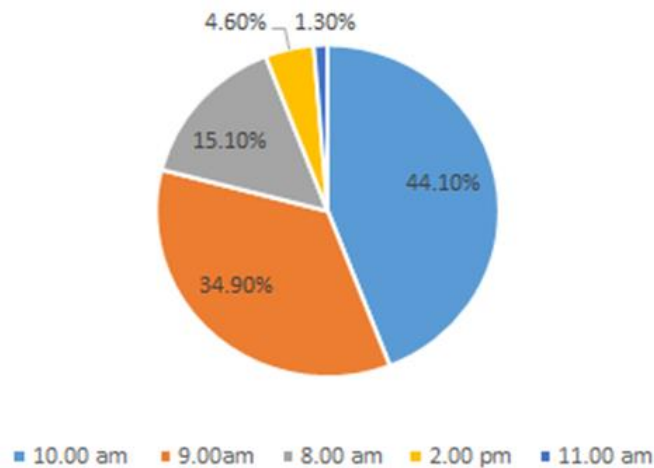
Table 1: Students' preferred assessment for learning during online class

Preferred assessment for learning during online class	Mean	Std. Deviation
Tests are necessary for my understanding during online class.	3.861	.841
Assignments are necessary for my understanding during online class.	3.934	.830

Examinations are necessary for my understanding during online class.	3.954	.760
Quizzes are necessary for my understanding during online class.	4.126	.803

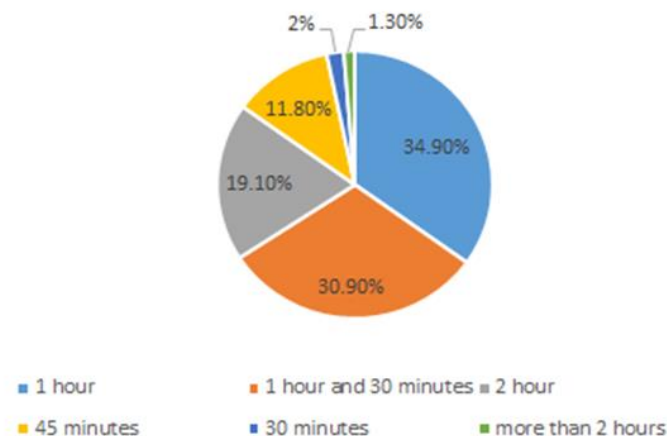
Figure 5 shows the undergraduates' preferred time for the first class. Most students preferred 10.00 am class (44.1%) followed by 34.9% of the respondents favoured 9.00 am class. Meanwhile, 15.1% of the respondents preferred 8.00 am class. The remainder selected 2.00 pm class (4.6%), and 1.3% chose 11.00 am class.

Figure 5: Students' most preferred schedule



Moreover, Figure 6 describes the preferred duration for an online class among the undergraduates. Most students preferred 1 hour (34.9%) of duration for an online class. The second most preferred duration for an online class was 1 hour and 30 minutes (30.9%), followed by 2 hours (19.1%), 45 minutes (11.8%), 30 minutes (2%), and more than 2 hours (1.3%).

Figure 6: Students' most preferred duration for an online class



In addition, Figure 7 depicts the preferred time spent per day for online classes among the undergraduates. The undergraduates' preferences according to the majority were 4 hours (43.45%), 3 hours (19.1%), 2 hours (19.7%), and more than 4 hours (9.9%). The least preferred time spent for online classes was 1 hour (7.9%) per day.

Figure 7: Students' most preferred time spent per day for online classes

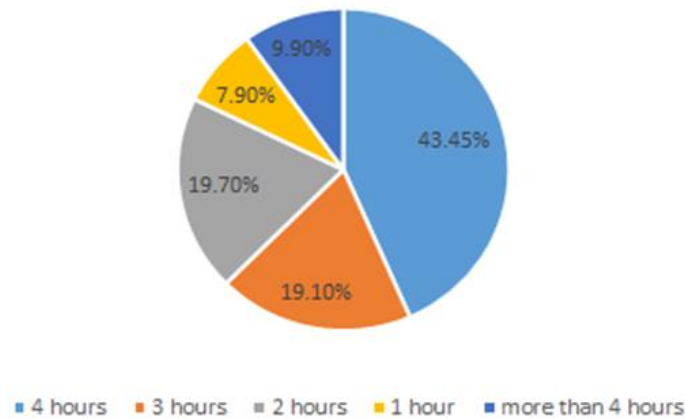
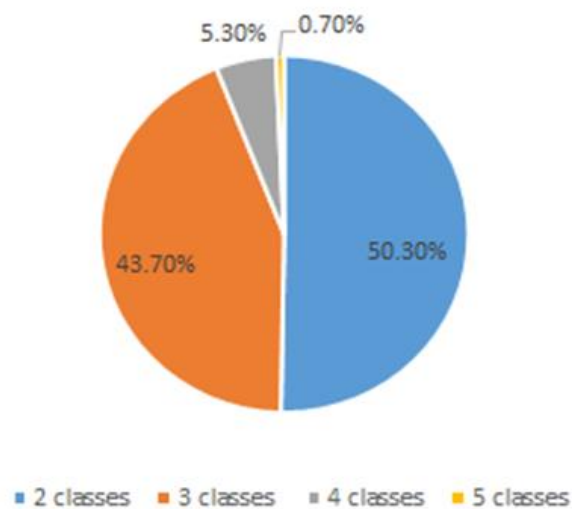


Figure 8 shows the maximum number of online classes per day preferred by the students. They mostly preferred 2 classes per day (50.3%). The second most preferred number of classes were 3 classes (43.7%), followed by 4 classes (5.3%) and 5 classes (0.7%) respectively.

Figure 8: Students' preference for online classes per day



To get a better understanding of the students' experience during remote learning, they were asked to provide their suggestions on how to improve their experience. However, it was not compulsory to provide their feedback for this part. Hence, the number of responses received may not be equivalent to the number of respondents. The following themes emerged (Table 2) namely empathy, engagement, readiness, accessibility, content, flexibility, and motivation. From the themes listed, students are mostly concerned with the lecturer's teaching styles. This highlights the educators' roles in planning and delivering their class based on the situational context while putting in mind the best approaches to implement during online learning. However, some students responded to the question by suggesting how students themselves can help to improve their own learning experience by becoming an active and responsible learner.

Table 2: Students' suggestions to improve their online learning experience.

Themes	Subthemes	Examples
Empathy	Provide breaks Personal connection Offer guidance	"Give students at least a 10 minutes break." "Build a personal connection with your students. Identify and support struggling students." "Guide students in doing their assignments"
Engagement	Face to face experience Current and interesting topics Game-based platforms	"Everyone is required to turn on their camera" "Prepare students with exciting assessment, insert viral topic in the lectures to make it interesting" "Make lessons more fun by using platforms like Kahoot and Quizizz"
Readiness	Students' initiative Follow up Peer support	"Find a place with a good connection and be more focused on studying for every topic learnt in order to understand well thus improve good physical and mental health among students." "Ask questions when we don't understand" "To improve students' online learning experience, students should be active and support each other"
Accessibility	Familiar platforms Learning materials Limited Internet	"Use platforms that students are familiar with such as Google Classroom and WhatsApp." "Students must be able to easily navigate your LMS to find their course materials, discussions, assessments, and recordings. Everything they need should be right where they would naturally look for it." "Consider students' data by making the class short and precise and create discussions using WhatsApp or Telegram for hard subjects"
Content	Advance planning Concise and precise Recorded lectures	"Provide enough materials before the learning starts." "Don't give a wordy presentation. Just short, concise, and complete notes." "In my opinion, students should be provided with recorded videos instead of live session teaching. The reason is because some of the students may have problems with their network so they couldn't hear so well what the lecturer explained to them."
Flexibility	Time extension Discuss deadlines	"Give an extra hour during the test because some students might suddenly have internet problems, or sudden blackout, or anything that could affect their marks during the test...." "I guess give less assignments and lecturers should discuss with the students for the due date of the assignment especially when we have so many subjects to cover."
Motivation	Compliment students Motivate students	"Give credit to those who have great achievements." "Give students some motivation every day during class time and also make some discussions meaningful."

5. Discussion

The aim of this study was to investigate the students' preferences for distance learning, including the platforms they prefer, the types of tests they desire, and class schedules, as well as other suggestions for improving distance learning during the Covid-19 epidemic. Several important conclusions can be drawn from the findings. The discussion of the present study is framed within the limitations of 152 undergraduate students from a public university in Malaysia. The students responded to an online survey based on their overall feedback about their online learning experiences without relating them to any online courses specifically. The discussion section will be arranged according to the list of the research questions.

The findings revealed that 40.4% of the participants have chosen Google Meet as their most preferred platform for online classes delivery. Based on the open-ended responses, Google Meet is the most preferred platform by the students because of its friendliness and the ability to provide a direct medium for the students to ask questions to the lecturer. This shows that virtual meetings offer opportunities for students to interact asynchronously with their lecturer especially when they need more explanation regarding the subject that is being taught to them. Parallel to [Muthuprasad et al. \(2021\)](#), he mentioned students preferred live classes that can be recorded for online delivery since it gives them a flexibility in learning. Another study by [Khan et al. \(2021\)](#), showed students attended live classes because they think it is required and beneficial at the same time. Although students were unable to see their facilitator in person, there is still a need for a face-to-face interaction that can be enabled through platforms like Google Meet. Getting immediate feedback through such a platform is a plus point for the students as it assists them in their learning.

Furthermore, the majority (80.8%) chose WhatsApp messenger as the most preferred application to communicate for academic matters. The open-ended question shows WhatsApp to be chosen as the most preferred medium because of the time-saving factor when delivering the messages, the minimal mobile data required during the communication and its familiarity to everyone across all ages. WhatsApp also has the ability to provide a sense of closeness during the conversation as if it is occurring in the real world. Students' preference over WhatsApp during online learning is also consistent in previous studies ([Dahdal, 2020](#), [Saidi et al., 2021](#); [Munir, Erlinda, Putra, & Afrinursalim, 2021](#); [Amin & Sundari, 2020](#)). However, this could only be the case when students have access to the Internet as reported by [Motaung and Dube \(2020\)](#) on the difficulties faced by students in the rural areas when using WhatsApp for e-tutorials. Despite being a free application and scoring high on the preference scale due to its practicality and accessibility, students who have poor access to the Internet will not enjoy any of the platforms.

In addition, Google Classroom is the most preferred platform (77%) for online assessment due to its accessibility and its assignment reminders. The finding was triangulated with the responses from the open-ended questions which reported Google Classroom assisted the students to access the materials for the assessment easier than other assessments. Other than that, the reminders on the date of the assessment in Google Classroom helped in making sure the students to be present for the assessment. Similar to the findings of other scholars, they found the platform to be favoured by the students due to its convenience ([Saidi et al., 2021](#); [Mathew & Chung, 2021](#)). Universities

could innovate their LMS based on Google Classroom Feedback received from students about their preferences can be referred to for such purposes.

In [Figure 4](#), 57.2% students preferred quizzes as their assessment during online learning. The qualitative finding further explains the reason for such preference where students prefer the quizzes because of the difficulty level and interactive features of quizzes that can be conducted using a platform like Quizziz. Furthermore, this platform has interesting graphic interfaces which can increase their motivation. Interactivity has been found to be an important feature of online learning ([Muthuprasad et al., 2021](#)). To enhance students' interactivity in the class, the integration of quizzes could help to provide reflection and retention of a certain subject or topic that has been taught. In this regard, it is recommended for educators to administer quizzes in their classes. The students also stated quizzes as the assessment that helps in their understanding of the lesson the most. [Boston \(2002\)](#) stated that formative assessment like quizzes, tests and assignments are helpful for the students when feedback is provided for every assessment. Feedback such as comments about errors and specific suggestions for improvement aids students to focus their attention on the subject learnt, especially the low achieving students. In the present study, the utilization of quizzes using Quizziz platform helped in students' understanding of the lesson due to the feedback functions provided in the game. Students learn from their mistakes and correct them after receiving the generated feedback from their answers in the quiz.

As for the preferred time for the first class, 10.00 am class was being favoured by 44.1% students. Moreover, the students preferred 1 hour (34.9%) the most as the duration for an online class. Also, the preferred time spent per day for online classes was a class that lasted for 4 hours (43.45%). [Muthuprasad et al. \(2021\)](#) found students to require more flexibility in choosing their preferred platforms and time for them to be comfortable in distance learning. Referring to their preferred time, it is observed that students prefer to not have class too early in the morning and with an adequate time spent for each session of class. A similar result came from a study by [Muthuprasad et al. \(2021\)](#). They found students were inclined to spend 45 minutes per session and were willing to spend only 2 to 4 hours on online classes daily. [Mitsui, Sugihara, and Koizumi \(2004\)](#) emphasized that taking consideration of the students' preferences on their class schedule is important to sustain remote learning because each student might have their own preferred learning time where they can fully focus on the lesson. It seems that a proper adjustment on the duration of time spent on lectures is something that universities need to take into consideration to have an excellent and equitable teaching and learning experience.

The findings for the suggestions to improve students' online learning experience were collected qualitatively from the open-ended questions of the questionnaire. 7 themes emerged from the data. The themes were empathy, engagement, readiness, accessibility, content, flexibility, and motivation. The students responded with plenty of suggestions for the lecturers and students alike to improve their online learning experience. In general, based on the suggestions made by the students, the present study found that the success of online learning was strongly influenced by students' needs and interests. Instructor's quality, students' expectations, feedback, and design are the prominent factors that derive students' satisfaction with remote learning ([Gopal, Singh & Aggarwal, 2021](#)). In research from [Abou-Khalil et al. \(2021\)](#), they found that effective engagement strategies stem from student-content strategy. This differs from the findings of this study where the students rely on the lecturers to come up with exciting contents to keep them engaged (student-lecturer strategy) ([Azubuike et al., 2021](#)).

6. Conclusion

Remote learning has become one of the main teaching and learning approaches since the pandemic, understanding the students' preferences during online learning is essential for educators and students. The findings of this study indicated that there were several variables that determined the success and satisfaction of online learning. It is believed that the results obtained from the present study were exceedingly helpful to understand the phenomenon of remote learning among university students. In response to this, it is important for educators to cater to students' needs and preferences to ensure the efficiency of remote learning.

Acknowledgement

The authors would like to thank the students for responding to the survey form.

Funding

This study received no funding.

Conflict of Interests

The authors declare no conflict of interest in this study.

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