

RESEARCH PAPER

An Investigating Malaysian Pre-University Students' Acceptance and Use of Microsoft Teams for Online Learning During Covid-19 Pandemic

Mohd Hafizul Ismail^{1*}, Nurashikin Saaludin², Basyirah Che Mat³ & Siti Nur Dina Haji Mohd Ali⁴

Received 1 September 2022; Revised 2 November 2022; Accepted 8 January 2023;
© Iran University of Science and Technology 2023

ABSTRACT

The COVID-19 pandemic forced Malaysian Higher Education Institutions to pursue online and distance learning. This study aimed to gain insight into the pre-university students' acceptance and intention to use the Microsoft Teams (MS Teams) application for online learning platforms during the pandemic. This group of students was chosen because they had just finished high school, and their transition from the school system to the university system with online learning will pose many difficulties. The theoretical framework for this study was developed using the Technology Acceptance Model (TAM) with additional facilitating conditions and computer self-efficacy as the external elements. The participants were 180 pre-university students from Universiti Kuala Lumpur Malaysian Institute of Information Technology who had experience using MS Teams during their first semester. With SPSS, the predictive factors on the acceptance of students toward online learning have been explained. The findings also indicate that the proposed TAM-based scale successfully explained the factors predicting intention to use MS Teams during the pandemic. The findings assist researchers and practitioners in developing a more comprehensive view of pre-university students' acceptance and intention to use MS Teams. Finally, several recommendations have been made, including the implications and limitations of the study at the end of this paper to reference future research.

KEYWORDS: Technology acceptance model; Online learning; Pre-university students; MS Teams; COVID-19 pandemic.

1. Introduction

UNESCO [1] reported that the worldwide lockdown due to the COVID-19 pandemic impacted roughly 87% of the world's student population from more than 160 nations. When the emergence of COVID-19 rocked the world, the Malaysian government imposed various measures

to prevent virus outbreaks, including limiting big gatherings, wearing a face mask and introducing the Movement Control Order (MCO) [2].

In education, COVID-19 has put traditional or face-to-face education into disorder, whereby universities and educational institutions cannot conduct classes or meetings on a face-to-face basis. Consequently, governments have shifted education away from face-to-face teaching and learning (T&L) to online learning. Thus, higher education institutions (HEIs) in Malaysia began adopting online learning in the first quarter of 2020 and have continued with full or partial (blended) online learning since then [2]. Throughout the MCO period, the Malaysian Ministry of Higher Education issued a T&L implementation guide that includes online learning via web-based video conferencing and communications applications such as Microsoft Teams (MS Teams), Zoom, Facebook Live, and

*
Corresponding author: Mohd Hafizul Ismail
mhafizul@unikl.edu.my

1. Applied Statistics and Data Science (ASADS) Research Cluster Universiti Kuala Lumpur Malaysian Institute of Information Technology 50250 Kuala Lumpur, Malaysia.
2. Applied Statistics and Data Science (ASADS) Research Cluster Universiti Kuala Lumpur Malaysian Institute of Information Technology 50250 Kuala Lumpur, Malaysia.
3. Applied Statistics and Data Science (ASADS) Research Cluster Universiti Kuala Lumpur Malaysian Institute of Information Technology 50250 Kuala Lumpur, Malaysia.
4. Academy of Language Studies Universiti Teknologi Mara Cawangan Negeri Sembilan 72000, Negeri Sembilan, Malaysia.

Google Classroom beginning on 1 April 2020. These measures will ensure that students do not lose out on education [3].

With the cessation of face-to-face T&L on university campuses, many lecturers and students began utilising MS Teams as an educational tool for delivering and receiving knowledge and continuous educational communication and discussion [4], [5]. The MS Teams was used for the first time as an online learning platform at the Universiti Kuala Lumpur (UniKL). Still, before the pandemic, UniKL needed a complete online teaching and learning platform and relied on in-class communication. As a result of the cessation of face-to-face classes, the university uses the Learning Management System (LMS) called UniKL VLE and MS Teams to continue its T&L process during the pandemic. Due to the current shift away from traditional education, online learning platforms were widely used during the COVID-19 pandemic. However, the acceptance of MS Teams for online learning has been largely unexplored in UniKL [4]. The study's findings have consequences for other HEIs with similar features and scholars regarding the future of higher education, particularly in the case of developing countries. Additionally, a significant amount of consideration should be given to pre-university students' acceptance and intention to use the MS Teams throughout the COVID-19 pandemic by employing the Technology Acceptance Model (TAM). The findings of this study should assist lecturers and students in improving the quality of online learning through the MS Teams application.

The pre-university year (also known as Year 0) is often an additional year of study at the start of a bachelor's degree program. After high school, students need to complete a foundation year before continuing to their degree program. For most new undergraduate students, attending university or college can be a challenging experience. Students transition from high school to university and encounter additional responsibilities and challenges. According to [3], [6], new university students frequently face issues related to feeling uneasy in a new environment, exam anxiety and the different learning system compared to the school system. To date, there needs to be more assessment of the acceptance of the transition to online learning that students were studying pre-university level face. Prior research has primarily focused on secondary school pupils and those seeking diplomas and bachelor's degrees [6], [7]. Thus, it is essential to investigate the acceptance and

intention of pre-university students to embark on online learning. This study examines students' acceptance of using the MS Teams platform for online learning, webinars, and class discussion using the modified Technology Acceptance Model (TAM). Previous studies have used the TAM to examine user attitudes toward applications such as Wiki [8] and Zoom [9]. A review of the existing literature revealed that the TAM has yet to be used to examine user attitudes toward MS Teams in online learning, especially for pre-university students. As such, this study will examine pre-university students' perceptions of utilising MS Teams in online learning in terms of computer self-efficacy, facilitating conditions, perceived usefulness, perceived ease of use, attitude to use, behavioural intention and actual use of MS Teams.

Given the rapidly expanding need for online learning technology in Malaysia, which may provide students with greater options and a better online learning experience, it is critical to study students' views of using MS Teams for online learning. This effort is also critical in improving policy development and online learning-related initiatives at HEIs in the country [10]. By understanding students' perceptions and preferences, lecturers may remove barriers to their learning experience and boost the activities and attributes they like, enhancing the teaching and learning process. Additionally, this study can assist lecturers in the pre-university program develop curriculum for pre-university subjects. The new curriculum must ensure the use of appropriate digital tools preferred by pre-university students in the teaching and learning process and an appropriate assessment approach during the online learning period. As a result, the quality of online education during this pandemic may be improved, and students' ability to study in any condition may be raised.

2. Literature Review

Online learning is defined as "a method of T&L that fully or partially represents the educational model used, based on the use of electronic media and devices as tools for increasing access to training, communication, and interaction, and assisting in the acceptance of novel ways of comprehending and establishing learning" [11]. Online and distance learning are sometimes used interchangeably since both relate to modes of instruction in which teachers and students are physically separated. As with distance learning, learning materials are distributed using electrical platforms. However, the difference between the

two modes is in the learners' needs. Distance learning is primarily for people who lack the financial means and time to attend traditional classes but wish to pursue a degree to further their educational or professional goals.

In contrast, online learning is for those who can and cannot attend a regular course. Additionally, in online learning, teaching and learning can take place entirely online or through a combination of face-to-face and online communication. Typically, online courses are defined as those in which at least 80% of the content is delivered online without face-to-face interaction. Blended courses are defined as those in which 30%–79% of the course content is delivered online, and web-facilitated courses are defined as those in which 1%–29% of the course content is delivered online [12]. Online and distance learning has become popular in recent years due to convenience. Online learning seeks to provide teachers and learners with the ability to study anywhere, although it is not without problems [13].

The first wave of the COVID-19 pandemic, which began in the first quarter of 2020, has prompted the Malaysian government and HEIs to look for swift alternatives to the traditional face-to-face learning system. HEIs in Malaysia have been affected by the COVID-19 pandemic during the March semester of undergraduate and pre-university programs. Thus, with little to no other alternative, HEIs were forced to shift their plan of action from traditional norms to a good option for online learning. The shift must be well-planned and appropriately designed to avoid future interruptions caused by the MCO [14], [15]. HEIs need help to adapt to this transition while choosing the best technology and strategies for educating and engaging their students. Most HEIs in Malaysia utilise a combination of video conferencing applications and an LMS as a substitute learning tool for a university-distant-learning setup that meets their requirement for interactive learning between students and lecturers [2], [3], [5]. Popular video conferencing platforms such as Skype, Zoom, Google Meet and MS Teams are used for virtual engagement and meetings.

In contrast, LMS such as Google Classroom, Edmodo, Socrativ, and the universities' own LMS are used for material sharing, quiz administration, and performance monitoring. On the other hand, adapting to the new normal is a challenging task. To facilitate teacher-student engagement, they must adopt online communication platforms effectively [16], [17]. Adopting such online

platforms for online classes improves an organisation's digital maturity, making it more flexible in dealing with various situations. However, this method may be ineffective in some disciplines, such as hands-on medical or technical education [17].

Although online learning can help students learning process, there are several challenges to encounter when using it. Although online learning makes students feel less hesitant and embarrassed to ask questions, there is evidence that distance learning makes students feel less engaged, demanding more commitment from their teachers [5]. Without instructor interaction, students feel less comfortable, and this unpleasant emotion may impede online learning [17]. Online teaching and learning have developed to the extent that they can now sustain educational dynamics while substituting traditional educational approaches. As a result, ensuring access to remote learning has become a top priority for ensuring equitable and inclusive education [18]. Other most common issues in the online learning environment are related to readiness for online learning and its effects on learners' achievement, engagement, and retention [18]. These impacts can contribute to increasing student engagement, more excellent effective facilitation, the development of assessment techniques, and creating interactive teaching and learning [14].

Technology is essential in creating a connection between students and educational institutions, and this technology benefits students by providing a virtual representation of their learning progress. The COVID-19 pandemic pushes schools and universities to embrace online platforms for offering online classes/webinars. People are discovering new ways to meet their requirements digitally. Thus, UniKL and Microsoft Corporation have collaborated to use MS Teams for teaching and learning [4]. MS Teams is a Microsoft Office 365-integrated collaboration platform. Online meetings, video conferencing, and file storage are among the features available in the app. Users of MS Teams can create virtual classes and manage them in the same way that real classrooms are organised, allowing students to engage with their peers and teachers. This interaction can occur in various forms, such as online class meetings, chats, posts, and online assessments [18], [19].

Users can create a 'real-time' meeting with an online post-class lecture video recording function, share teaching resources such as lecture notes, articles, or additional exercises, and use a

chat relay for direct communication using MS Teams. Students and lecturers could use MS Teams messaging chat during online sessions to discuss and share files. MS Teams also allows students to turn on their microphones and seek control while having a discussion. The instructors can also set up a separate meeting session for special discussions about assignment topics. Each class meeting has a video-recording function, and the lecturer takes attendance using an auto-generated attendance list. Following the online session, the lecturer must manually enter the attendance into the university's web attendance system. Aside from that, lecturers must arrange the assessment marking scheme in the university system, which has limited time for students to submit their answer scripts, such as quizzes and midterm tests.

Students' perceptions of using MS Teams in online learning have been studied in previous studies. Students had a favourable opinion of MS Teams usage in online learning during the COVID-19 pandemic, according to a recent survey by [20]. According to their study, MS Teams provides various benefits, including motivating students to be more disciplined, facilitating contact with classmates and lecturers, and providing ideal support for a proper learning environment. According to another study by [21], MS Teams is a better tool for online learning than other communication platforms such as Zooms and Google Meet. Another recent study by [22] verified MS Teams as an excellent online learning programme that is efficient and effective and increases students' interest in learning.

The same study, on the other hand, found several obstacles to utilising MS Teams in online learning, such as a lack of guidance on how to use the platform, a limited number of users or internet capacity, and the requirement for a strong internet connection [20], [21]. [22] found that MS Teams is ineffective for laboratory sessions and that MS Teams is impractical for submitting lengthy answers, such as essay problems. Other drawbacks of using MS Teams as an online learning platform; include a lack of interaction between students and their educators, leading to social isolation, a lack of communication, which can lead to mental issues such as negative thoughts, and a lack of self-motivation with poor time management. In addition, MS Teams users may have limited internet access, invisible image display, and indistinct speech [23]. In conclusion, MS Teams' adoption as an online learning tool is still in its initial stages, particularly in higher education, and it needs more improvement in the

system.

Besides offering a platform for students to continue their education at a higher level, universities also serve as a source of high-quality human resources. The government has implemented several policies, including the Malaysia Education Blueprint 2015-2025 (Higher Education), which require universities to develop students holistically, with entrepreneurial skills and a balanced mentality [24]. In the Malaysian education system, students have numerous options for continuing their studies at the next level after graduating from high school and obtaining Sijil Pelajaran Malaysia (SPM) (similar to the O-level) results. Certificate, diploma, and pre-university programs (form six, matriculation, foundation) are among the options that students can choose. On the other hand, students can take the Advanced Level (A-Level) or International Baccalaureate exams if they wish to continue their studies overseas. In terms of tertiary education, the students can either pursue a form six or enrol in a matriculation or foundation programme before continuing to the first year of the bachelor's degree program. Form six and matriculation programmes are governed by the Malaysian Ministry of Education, whereas foundation programmes are governed by the university that offers the programme.

According to [7], the pre-university level faced major related problems like adjustment to university life, social-psychological issues, and curriculum and learning methodology. They faced problems understanding the lecturing because the teaching methodology at the university level differed from what they encountered during high school. This problem will cause students to experience stress and can happen for some students who achieve academic achievement at the high school level but cannot maintain their performance at the university level. A study by [3] mentioned that the university environment had created challenges for students who are also dealing with other difficulties. Academic obstacles, time management challenges, self-adjustment to a new campus life, new teaching styles from faculty that differ from the student's previous school experiences, a different environment, increased workload, and communication barriers between students and lecturers are examples of such arising issues. On the other hand, [17], in a study on pre-university students' transitioning to online learning during pandemic, found that students' perceptions toward online learning have improved during the pandemic. Despite the

challenges like technical support, interactivity between peers and instructors, and less motivation, online learning results in increased student participation.

Universiti Kuala Lumpur Malaysian Institute of Information Technology (UniKL MIIT) offers one and half-year programs, namely Foundation in Computer Technology (FiCT) and Foundation in Science and Technology (FiST). The FiCT programs consist of two semesters (18 weeks per semester), while the FiST programs consist of three semesters. For the current session, there are 300 enrolled students with 50 academic and administrative staff members involved. UniKL MIIT has been forced to close due to the COVID-19 pandemic temporarily. With a learn-from-home strategy, the teaching and learning process must be transformed into online and distance learning. The MCO halted regular face-to-face sessions in the middle of the second semester (December 2019 to May 2020), forcing students to shift to online learning. Beginning April 15, 2020, UniKL MIIT progressively implemented full online teaching delivery and assessment. The university's learning management system (LMS), VLE and MS Teams, were used as an official online learning platform. This arrangement resulted in the transition of 3000 UniKL MIIT students to fully online learning mode. MS Teams allows lecturers and instructors to create virtual classes and offer courses with various tools that enable synchronous and asynchronous teaching and learning.

The TAM is used to build the acceptability analysis and intention to use the MS Teams, adapting it to the original model developed by [25], which [16] and [26] also used in the same approach the research conducted. [25] proposed and developed the TAM based on Ajzen and Fischbein's Theory of Reasoned Action (TRA) and provided a theoretical background for explaining the relationship between attitudes, intentions, and action. The TAM has empirically demonstrated robust and sparing in its technological acceptance and adoption prediction. According to the TAM, an individual's performance of a specific action is governed by their behavioural intention to execute that behaviour. Two specific criteria are hypothesised to be the fundamental determinants of user acceptance (perceived utility and perceived ease of use). The TAM was developed to forecast an individual's or organisation's likelihood of adopting new technology. This model states that conduct is determined by the intentions to perform the behaviour, the attitude

toward the behaviour, and the social pressure to perform the behaviour [25], [27]. The TAM also stated that future use could be predicted by using the model when the technology was first utilised [28].

TAM is a dominant model for explaining IT adoption at the organisational level [16], determining the factors affecting user acceptance of new technical systems[28], and a model that explains the majority of variation in users' behavioural intention for information system adoption [29]. Five variables constitute the TAM: perceived ease of use, perceived usefulness, attitude toward use, behavioural intention to use, and actual usage. The model's two most significant variables are perceived ease of use, which refers to the assumption that little effort will be required, and perceived usefulness, which refers to the belief that the technology would improve job performance. These two variables and attitude toward use are the TAM's essential variables. Behavioural intention to use and actual usage are outcome variables. Notably, while behavioural intention is predictive of use, the relationship can also work in reverse, as excellent user experience can influence behavioural intentions. Finally, external variables include subjective norms, self-efficacy with computers, and facilitating conditions [29].

Assessing pre-university students' acceptance and intention to use MS Teams as an online learning platform is essential. Users' attitudes and perceptions have a crucial role in technology adoption. Users' acceptance is critical because a positive and high level of acceptance encourages students to develop a favourable attitude toward their learning session using MS Teams [25]. The following research questions were formulated to guide this study:

Research question 1: What is the Malaysian pre-university students' level of acceptance and intention to use MS Teams for their online learning?

Research question 2: Are there significant differences in modified TAM variables between gender, learning locations and level of internet connectivity?

Research question 3: Is there a significant positive correlation between all modified TAM variables?

3. Research Methodology

This study was conducted via an online survey between August and September 2021 in response to the Malaysian government's March 2020 announcement of university closures. The

respondents comprised pre-university students in two programs: Foundation in Science and Technology (FiST) and Foundation in Computer Technology (FiCT) at UniKL MIIT, City Campus. According to university enrollment data, there were 300 pre-university students registered at the time of data collection. According to Krejcie & Morgan (1970), a minimum sample size of 169 is required for a population of 300. On this basis, questionnaire questionnaires were delivered to students. The online questionnaire was distributed via WhatsApp and Facebook groups to a random sample of students who enrolled in these two programmes, FiCT and FiST.

Additionally, students received a link to the questionnaire via their email. These students were contacted directly by members of the research team who participated in the MS Teams learning experience. Only 180 forms were filled out and deemed valid for analysis. This sample size was sufficient for data analysis and to compare favourably with similar research projects' samples. This study applies a simple random sampling method. The students used MS Teams in combination with an LMS (VLE) during the academic year 2020/2021, which corresponded with the COVID-19 university closures. The survey was conducted based on the student's willingness to participate based on their use of MS Teams this semester. One hundred ninety respondents responded to an online questionnaire regarding their views of MS Teams' use in online learning.

The review of the literature assists researchers in defining and analysing theories and concepts associated with the theoretical research framework. Additionally, it seeks to establish the study's objective method for instrumentation. Adapted survey instruments were used in this study to determine the variables associated with the usage of MS Teams during COVID-19. The adaption process developed a new instrument for the current study; the indicators were differentiated and tailored to the study's circumstances, COVID-19 and MS Teams usage. Two sections comprised the questionnaire. The first section details the respondents' demographic data, including their gender, age, preferred devices for online learning, and prior experience with MS Teams. The second section examined students' experiences with revised courses utilising MS Teams. This portion featured 21 items pre-tested on a five-point Likert scale. These items were adapted from several relevant studies that verified the reliability and validity of

the instruments employed. On the Likert scale, 1 denoted "strongly disagree," 2 denoted "disagree," 3 indicated "neutral," 4 denoted "agree," and 5 denoted "strongly agree." These items were classified according to 7 main variables that affect students' experiences: computer self-efficacy, facilitating conditions, perceived usefulness, perceived ease of use, attitude to use, behavioural intention, and actual use of MS Teams for online learning. Every variable has three items. The questionnaire items were adopted from a previous study [11], [26] and analysed in another study [9].

The data were gathered from the responses of 180 pre-university students to a questionnaire. The researchers used an inferential and correlational research design to collect descriptive and inferential data to describe the current phenomenon of Malaysian pre-university students' acceptance of MS Teams for online learning. Data is also used to determine the relationship between students' acceptance and their intention to use MS Teams. The measurement model was evaluated first to determine the variables' reliability and validity, and then the structural model was evaluated to assess the significance of the relationships between the variables. The data were analysed using a combination of descriptive statistics (i.e. percentages and frequency counts), independent-sample t-tests, Analysis of Variance (ANOVA), and bivariate correlations. Each analysis will address the first, second, and third research objectives, respectively. SPSS 22.0 was used to analyse descriptive statistics and Cronbach's alpha coefficients. Additionally, this software was utilised to analyse the inferential statistics.

The composite ranges generated have reliability values of 0.936, exceeding the recommended threshold of 0.70 [30]. Seven variables, each containing three items of the questionnaire, were tested. It was found that the reliability coefficient, Cronbach alpha value, was 0.936, which means about 93.6% of the variation in the data was explained, as shown in Table 2. It is an exceptionally high and very good value indeed. This result indicates that all the items have a high level of reliability and reflect a high level of internal consistency. ANOVA was used to determine the effects between various learning locations and internet connection status on each of the selected variables, namely CSE, PU, PEOU, ATU, BI and AU. An Independent T-test (T-test) was used to determine whether there was a significant difference between the means of gender. Between the mean of the variables, a

bivariate correlation procedure utilising the Pearson product-moment coefficient was done to check if the variables were significantly and positively correlated.

4. Results and Discussions

4.1. Demographic data

As a result of data collection, 204 questionnaires were received, and upon data cleaning, only a handful of 180 was analyzed. This sample size is sufficient for data analysis, as stated by [31]. A minimum sample size of 169 is required for a population of 300. Of 180 respondents, 91 (50.6%) were female, and 89 (49.4%) were male. Most of the respondents, 145 (80.6%), were from Foundation in Science and Technology (FiST), and 35 (19.4%) were from Foundation in

Computer Technology (FiCT). 102 (56.7%) of respondents were from semester 1 and 78 (43.3%) from semester 3. Most of the respondents, 127 (70.6%), had their online learning from a university hostel, 46 (25.6%) from home in a city area, and 7 (3.9%) from home at home in a rural area. In terms of internet connectivity at the learning location, most of the connectivity was good at 77 (42.8%), very good at 62 (34.4%), an average of 37 (20.6%), and poor at 4 (2.2%). Students use different devices for online learning, albeit the vast majority of students use a laptop (95%), computer 2.8%), and tablet (1.7%), while only 0.6% of the students use a smartphone for online learning. The complete demographic data of the respondents is presented in Table 1.

Tab. 1. Demographic data

Characteristics	Answer	Frequency	Percentage (%)
Gender	Male	91	50.6
	Female	89	49.4
Program	FiST	145	80.6
	FiCT	35	19.4
Semester	1	102	56.7
	3	78	43.3
Learning location	University hostel	127	70.6
	Home in town area	46	25.6
	Home in rural area	7	3.9
Internet connectivity	Very good	62	34.4
	good	77	42.8
	Average	37	20.6
	Poor	4	2.2
Main online learning device	Laptop	171	95
	Computer	5	2.8
	Tablet	3	1.7
	Smartphone	1	0.6

4.2. Descriptive analysis

The means for each item were calculated to look into the students' response on acceptance and intention toward using MS Team as an online learning platform. A higher mean value in Table 2 suggests a higher measured variable level. The researchers classified the degree of the variables into three categories (low, medium, and high) to answer the study's first research question. The descriptive statistics can be classified based on their summated mean score, with 1 to 2.339 being considered as "low," 2.34 to 3.669 as "moderate," and 3.67 to 5 as "high." All the mean values stated in Table 2 shows the scores for all the

variables are more than 3.67, which revealed that all respondents gave positive response on each variable.

Based on Table 2, most students opined that MS Teams is easy to learn, and they are satisfied with its functions ($M= 4.117$, $SD=0.6763$). Students also had a good attitude toward using MS Teams ($M=4.206$, $SD=0.6916$), believing that MS Teams is a good alternative platform for their T&L process and that MS Teams is compatible with their devices. The results also show that most students have high computer skills, which means they have the necessary knowledge and skills to use MS Teams even without assistance.

Students have a high acceptance and intention to use MS Teams in their online learning because of the computer self-efficacy, facilitation conditions, perceived usefulness, and ease of use. They foster positive attitudes toward using MS Teams. They also intend to use MS Teams in the future and

believe it provides an interactive learning environment. In addition, all of the Cronbach's alpha values for variables are greater than 0.70, indicating strong construct reliability, according to [32].

Tab. 2. Descriptive analysis

Variables	Means	Std. Deviation	Cronbach's A
1. Computer Self-Efficacy (CSE)	4.1722	.77474	.839
2. Facilitating conditions (FC)	3.7204	.7359	.731
3. Perceive Usefulness (PU)	3.8337	.8584	.927
4. Perceive ease of use (PEOU)	4.1167	.6763	.825
5. Attitude to use (ATU)	4.2056	.69160	.870
6. Behavioral Intention (BI)	3.8944	.84671	.907
7. Actual Use (AU)	3.8685	.74785	.703

4.3. Inferential analysis

The difference in opinion between students based on gender was determined using an independent sample t-test. Based on Table 3 below, gender was found to significantly affect attitude toward usage [$p=0.018$] and actual use of MS Teams [$p=0.005$]. Female students had higher levels of attitude to use the MS Teams ($M=4.32$, $SD=0.60$) as compared to male students ($M=4.08$, $SD=0.76$), and in terms of actual use of MS Teams, female students also had a higher score ($M=4.02$, $SD=0.65$) as compared to male students ($M=3.71$, $SD=0.81$). This finding is in line with the mean difference between males and females for the attitude toward usage and actual use of MS Teams, which is more than 0.24361. Both attitude and actual use of MS Teams for females are obtained greater than for males. This study's findings are consistent with the study by [27], who discovered that male and female students have different perceptions and effects on the relationships among the variables that influence attitude and actual use of computers and e-learning. However, previous research has found that male students are more enthusiastic about using computers in the classroom than their counterparts [33].

A one-way ANOVA test was used to assess the

impact of various learning locations and internet connection status on the TAM variables. ANOVA will provide evidence on mean differences that occurred (if any) between groups of online learning locations and groups of internet connection status on TAM's variables. ANOVA can only test whether the results are significant overall, but the ANOVA does not mention exactly where the differences are. As Table 4 and 5 shows, after the ANOVA was performed, a significant difference in computer self-efficacy in learning location ($p=0.17$) and internet connectivity ($p=0.03$) was significant. However, other variables recorded insignificant results. To find out how computer self-efficacy differs with certain groups, post hoc comparisons using the Tukey HSD test are recommended. This test compares all possible pairs of ways. Table 6 revealed that all the p-values are insignificant between CSE and internet connectivity ($p>0.05$). The p-values more than 0.05 indicate no significant differences for all variables with various learning location groups. However, Table 7 shows a significant difference in computer self-efficacy between the learning locations. Students who learn at a hostel have higher computer self-efficacy compared to students learning at home in rural areas ($\text{sig } 0.038 < 0.05$).

Tab. 3. T-Test (gender)

Variables	Male		Female	
	M	SD	M	SD
CSE	4.1610	.86910	4.1832	.67452
FC	3.6404	.76578	3.7985	.70076
PU	3.7715	.90117	3.9011	.81422
PEOU	4.0524	.70334	4.1795	.64656
ATU	4.0824	.75592	4.3260	.60242
BI	3.7790	.92106	4.0073	.75519
AU	3.7116	.81369	4.0220	.64560

Tab. 4. Anova analysis (learning locations)

Variables	Learning Location			Sig (2-tailed)
	Urban	Rural	Hostel	
CSE	4.0290	3.5238	4.2598	0.017
FC	3.7174	3.7143	3.7218	0.999
PU	3.7609	4.0000	3.8556	0.716
PEOU	4.0072	4.3333	4.1444	0.346
ATU	4.1812	4.2857	4.2100	0.926
BI	3.8043	4.0476	3.9186	0.655
AU	3.6377	3.9048	3.9501	0.051

Tab. 5. Anova analysis (connectivity)

Variables	Internet Connectivity				Sig (2-tailed)
	Poor	Avg.	Good	Very Good	
CSE	3.416	4.018	4.138	4.3548	.030
FC	3.750	3.675	3.688	3.7849	.860
PU	4.333	3.702	3.839	3.8817	.495
PEOU	4.083	3.991	4.134	4.1720	.628
ATU	4.500	4.225	4.225	4.1505	.754
BI	4.500	3.900	3.922	3.8172	.452
AU	4.083	3.810	3.991	3.7366	.208

Tab. 6. Anova analysis (cse vs internet connectivity)

Internet Connection		Mean Diff	Std. Error	Sig.
Poor	Avg.	-.60135	.40058	.439
	Good	-.71053	.39043	.267
	V. Good	-.93817	.39263	.083
Avg.	Poor	.60135	.40058	.439
	Good	-.10917	.15257	.891
	V. Good	-.33682	.15811	.148
Good	Poor	.71053	.39043	.267
	Avg.	.10917	.15257	.891
	V. Good	-.22765	.13025	.302
Good	Poor	.93817	.39263	.083
	Avg.	.33682	.15811	.148
	Good	.22765	.13025	.302

Tab.7. Tukey HSD tests (cse vs learning locations)

Learning Locations		Mean Diff	Std. Error	Sig.
City	Rural	.50518	.30889	.234
	Hostel	-.22498	.13116	.202
	City	-.50518	.30889	.234
Rural	Hostel	-.73016*	.29566	.038
	City	.22498	.13116	.202
Hostel	Rural	.73016*	.29566	.038

The availability of assistance and support from peers at the hostel may influence students' computer self-efficacy as compared to learning individually at home in rural areas without having enough support and assistance [34].

Since this study is exploratory, the acquired data is further analyzed using the Bivariate Correlation test. Correlation is a statistic that measures the extent to which two variables move in relation to each other. This analysis is important to determine which items in TAM are highly correlated with proving students' acceptance of using MS Team as an online learning platform. Correlation coefficient analysis is conducted to identify the strength and direction of a linear relationship between two and more variables, and the degree of correlation shows the strength of their relationship [35]. This

study used Pearson's correlation coefficient analysis to determine the strength of the relationships between the seven variables. The plus and minus signs indicate whether the correlation is positive: as the independent variable increases, the dependent variable increases as well, or negative: as the independent variable increases, the dependent variable decreases [35]. Between two variables, a perfect correlation coefficient of 1 or -1 means that the value of one variable can be determined precisely by knowing the value of the other variable. Correlation coefficients can be used to assess the effect of one variable on another. This criterion was used to determine the strength of correlations between the seven variables. [32] outlined some general parameters for coefficient extent and correlation quality in Table 8.

Tab.8. Scale of pearson's correlation coefficient)

Scales of Corr. Coefficient	Value
$0 < r \leq 0.19$	Very low correlation
$0.2 < r \leq 0.39$	Low correlation
$0.4 < r \leq 0.59$	Moderate correlation
$0.6 < r \leq 0.79$	High correlation
$0.8 < r \leq 1.0$	Very high correlation

Tab. 9. Correlation matrix

	CSE	FC	PU	PEOU	ATU	BI	AU
CSE	1						
FC	0.183	1					
PU	0.342	0.397	1				
PEOU	0.453	0.380	0.432	1			
ATU	0.361	0.557	0.487	0.581	1		
BI	0.377	0.460	0.479	0.656	0.734	1	
AU	0.454	0.374	0.429	0.640	0.713	0.734	1

Table 9 shows the values of Pearson's correlation matrix for all the variables studied. It is found that all the variables were found significant ($p < 0.01$) within this research. Results clearly show that PU and PEOU ($r = 0.3792$, $p=0.00$), PEOU

and ATU ($r = 0.5811$, $p=0.00$) exhibit moderate and p positive correlation while ATU and BI ($r = 0.7338$, $p=0.00$), BI and AU ($r = 0.7341$, $p=0.00$) exhibit high and positive correlation. It is interesting to point out that this study perceived

ease of use as a more relevant variable than its perceived usefulness contributed to their learning. It is contradicted by research conducted by Davis (1989); whereas perceived usefulness predicted intentions to utilize the technology, perceived ease of use was a secondary factor that acted through perceived usefulness. This contradiction can be explained that the students who are using the technology are not doing so voluntarily but rather because of the pandemic. In these mandatory settings, perceived ease of use may have a greater impact on technological acceptance than perceived usefulness.

These findings imply that pre-university students' perceptions of how effortless it will be to use MS Teams for online learning are strongly related to their perceptions of how useful MS Teams will be for accomplishing tasks. Additionally, the results indicate that the degree to which pre-university students believe that utilizing MS Teams will be beneficial for task completion strongly correlates with their desire to use MS Teams for online learning. Additionally, the degree to which pre-university students have a favorable attitude toward utilizing MS Teams correlates positively with their intention to use MS Teams for online learning.

This study found that perceived ease of use, attitude, behavioral intention, and actual use are highly correlated. A positive perception of MS Team will impact users to look into the interface and system as an interactive and user-friendly online learning platform. It will eventually influence users to become MS Team as a preference. MS Team is an easy-to-learn and also user -friendly online learning platform. Students can understand the manual provided by the academic office easily. However, the academic office should be wary of any issues concerning the MS Team as the mean of all items below the facilitating conditions is less than four.

5. Conclusion

This study aims to contribute to the theory of MS Teams' acceptability among users by identifying the significant factors influencing the acceptance and deployment of an online learning platform as a substitute for a face-to-face learning environment during COVID-19. This study helps close the gap by confirming students' acceptance of MS Teams in Malaysian HEIs. This study can be used to understand better how online learning was implemented during the COVID-19 pandemic and in future teaching and learning activities. This study incorporates and applies the TAM to identify the factors affecting pre-

university students' in HEIs acceptability to assist lecturers and university management in determining whether MS Teams are acceptable or unsuitable. As a result, the acceptability of the technological model dictates the acceptance of MS Teams due to its ease of use.

Based on the outcomes, pre-university students' intention to use MS Teams and the actual use are influenced by attitude towards use and how easy the platform is. As per the study's findings, TAM affected pre-university students' intentions to use MS Teams as a learning tool. The study's findings showed that most pre-university students were accepting and able to embrace MS Teams for online learning during the COVID-19 pandemic. Furthermore, the model utilized in this study implies that it is a viable model for explaining why students want to use MS Teams as an alternate learning method. The majority of the variables had a significant positive relationship, according to the study.

In conclusion, there is potential for practical application in the university's development and management of MS Teams. Educators and administrators should help increase university student's ability to use MS Teams and other online learning platforms. At the university level, the management and system administrators of e-learning must support students in improving their perspectives by integrating e-learning into their courses even after the pandemic period is over. Online teaching and learning with MS Teams is a temporary yet effective method for UniKL to collaborate to comply with government rules regarding pandemic campaigns without interfering with the scheduled teaching process. Students initially responded positively to adopting MS Teams as a platform for online learning last semester.

The findings have several implications for higher education policymakers and faculties concerning HEIs in developing countries. Online learning must be integrated into the higher education system to prepare for unexpected emergencies, such as the COVID-19 pandemic. As a result, policymakers in developing nations' higher education systems must establish a policy for online learning. Online learning is no longer novel; it has become a must for academic institutions in Malaysia nowadays. Now is the time for educational institutions to implement disruptive learning technologies, particularly during the pandemic and recovery period that follows. COVID-19 has necessitated the use of online and blended pedagogical approaches. This unprecedented crisis has created an opportunity

for Malaysia's over 5 million schools and 1.2 million university students to embed online learning in their existing teaching and learning curriculum.

References

- [1] UNESCO, "Global Monitoring of School Closures Caused by COVID-19," (2021). <https://en.unesco.org/covid19/educationresponse#schoolclosures>.
- [2] E. Chung, G. Subramaniam and L. C. Dass, "Online learning readiness among university students in Malaysia amidst Covid-19," *Asian J. Univ. Educ.*, Vol. 16, No. 2, (2020), pp. 45-58.
- [3] N. Mahat, H. Norkhaidi, S. B. Hashim, M. Saleh, Y. Nayan, N. Abdullah, N. H. L. and Jamhari, "Determining the effectiveness of pre-university student's online learning in geography subject using relative importance index," *Pegem J. Educ. Instr.*, Vol. 11, No. 4, (2021), pp. 160-168.
- [4] R. M. Nassr, A. Aborujilah, D. A. Aldossary, and A. A. A. Aldossary, "Understanding Education Difficulty During COVID-19 Lockdown: Reports on Malaysian University Students' Experience," *IEEE Access*, Vol. 8, (2020), pp. 186939-186950.
- [5] M. H. Ismail, N. Saaludin and S. N. D. Haji Mohd Ali, "The Foreign Language Students' Readiness on Online Learning in Malaysia," *Asia Proc. Soc. Sci.*, Vol. 8, No. 2, (2021), pp. 151-155.
- [6] F. Novel, C. R. P. Ajisuksmo and S. Supriyanti, "The influence of processing and regulation of learning on academic achievement amongst first year undergraduate psychology students in university of North Sumatra," *Asian J. Univ. Educ.*, Vol. 15, No. 2, pp. 38-51, 2019,
- [7] O. Jailani, A. H. T. Adli, M. A. C. Amat, S. M. Othman, N. Deylami and N. S. A. Rahim, "The Self-Perceived Problems among Malaysian Pre-university Students: Implications for College Counselling," *Asian J. Univ. Educ.*, Vol. 16, No. 3, (2020), pp. 112-124.
- [8] I. F. Liu, M. C. Chen, Y. S. Sun, D. Wible and C. H. Kuo, "Extending the TAM model to explore the factors that affect Intention to Use an Online Learning Community," *Comput. Educ.*, Vol. 54, No. 2, (2010), pp. 600-610.
- [9] H. A. Alfadda, H. S. Mahdi, "Measuring Students' Use of Zoom Application in Language Course Based on the Technology Acceptance Model (TAM)," *J. Psycholinguist. Res.*, Vol. 50, No. 4, (2021), pp. 883-900.
- [10] A. S. A. A. Alrashdi, N. Z. B. Nizam, "Factors Influencing the Adoption and Impact of Online Social Networks Use among Students within Public Universities in Abu Dhabi," *Int. J. Ind. Eng. Prod. Res.*, Vol. 33, No. 3, (2022), pp. 1-20.
- [11] S. A. Salloum, A. Q. M. Alhamad, A. A. Monem and K. Shaalan, "Exploring Students' Acceptance of E-Learning Through the Development of a Comprehensive Technology Acceptance Model," *IEEE Access*, Vol. 7, (2019), pp. 128445-128462.
- [12] F. M. Alsaaty, E. Carter, D. Abrahams and F. Alshameri, "Traditional Versus Online Learning in Institutions of Higher Education: Minority Business Students' Perceptions," *Bus. Manag. Res.*, Vol. 5, No. 2, (2016).
- [13] R. Singh and A. Soumya, "Updated comparative analysis on video conferencing platforms- Zoom, Google Meet, Microsoft Teams, WebEx Teams and GoToMeetings," *EasyChair world Sci.*, (2020), pp. 1-9.
- [14] A. Hosszu, "Design Issues in e-Learning during the COVID-19 Pandemic," 2021 23rd Int. Conf. Control Syst. Comput. Sci., (2021), pp. 432-438.
- [15] S. S. Motevali Haghighi & Motevali Haghighi, "Sustainability Risk Framework for Universities In the Context of Covid-

- 19 Pandemic,” *Int. J. Ind. Eng. Prod. Res.*, Vol. 33, No. 2, (2022), pp. 1-13.
- [16] R. M. Hernandez, “Employing Technology Acceptance Model (TAM): An Analysis on Students’ Reception on Online Learning Platforms during Covid-19 Pandemic,” *2021 IEEE Int. Conf. Autom. Control Intell. Syst. I2CACIS 2021 - Proc.*, No. June, (2021), pp. 58-63.
- [17] A. A. Kamal, N. M. Shaipullah, L. Truna, M. Sabri and S. N. Junaini, “Transitioning to online learning during COVID-19 Pandemic: Case study of a Pre-University Centre in Malaysia,” *Int. J. Adv. Comput. Sci. Appl.*, Vol. 11, No. 6, (2020), pp. 217-223.
- [18] M. H. Ismail, B. C. Mat, S. Nur, D. Haji and M. Ali, “Readiness for Online Learning Among Foreign Language Undergraduates in a Private University in Malaysia,” *Asian J. Univ. Educ.*, Vol. 18, No. (2022), pp. 397-405.
- [19] A. E. A. Sobaih, A. E. E. Salem, A. E. Hasanein, A. M. Elnasr, “Responses to COVID-19 in Higher Education: Students’ Learning Experience Using Microsoft Teams versus Social Network Sites,” *Sustainability*, Vol. 13, No. 18, (2021), p. 10036.
- [20] K. N. Wea and A. Dua Kuki, “Students’ Perceptions of Using Microsoft Teams Application in Online Learning during the Covid-19 Pandemic,” *J. Phys. Conf. Ser.*, Vol. 1842, No. 1, (2021).
- [21] T. Ly, N. Duong, N. Huyen and U. Nguyen, “The Challenges of E-learning Through Microsoft Teams for EFL Students at Van Lang University in COVID-19,” *AsiaCALL Online J.*, Vol. 12, No. 4, (2021), pp. 18-29.
- [22] S. Ismail and S. Ismail, “Teaching Approach using Microsoft Teams: Case Study on Satisfaction versus Barriers in Online Learning Environment,” *J. Phys. Conf. Ser.*, Vol. 1874, No. 1, (2021).
- [23] A. R. Rojabi, “Exploring EFL Students’ Perception of Online Learning via Microsoft Teams: University Level in Indonesia,” *English Lang. Teach. Educ. J.*, Vol. 3, No. 2, (2020), p. 163.
- [24] Ministry of Education Malaysia (MoE), “Malaysia Education Blueprint 2015-2025 (Higher Education),” *Minist. Educ. Malaysia*, Vol. 2025, (2015), p. 40.
- [25] F. Davis, “Perceived usefulness, perceived ease of use, and user acceptance of information technology,” *MIS Q.*, Vol. 13, No. 3, (1989), pp. 319-340.
- [26] Y. Yang and X. Wang, “Modeling the intention to use machine translation for student translators: An extension of Technology Acceptance Model,” *Comput. Educ.*, Vol. 133, No. (2019), pp. 116-126.
- [27] V. Venkatesh, “User Acceptance of Information Technology: Toward a Unified View,” *J. Chem. Inf. Model.*, Vol. 53, No. 9, (2003), pp. 1689-1699.
- [28] M. Turner, B. Kitchenham, P. Brereton, S. Charters and D. Budgen, “Does the technology acceptance model predict actual use? A systematic literature review,” *Inf. Softw. Technol.*, Vol. 52, No. 5, (2010), pp. 463-479.
- [29] A. Granić and N. Marangunić, “Technology acceptance model in educational context: A systematic literature review,” *Br. J. Educ. Technol.*, Vol. 50, No. 5, (2019), pp. 2572-2593.
- [30] J. F. Hair, W. C. Black, B. J. Babin, R. E. Anderson, W. C. Black and R. E. Anderson, *Multivariate Data Analysis*, 8th ed. Cengage Learning, (2019).
- [31] R. V Krejcie and D. Morgan, “Determining sample size for research activities,” *Educ. Psychol. Meas.*, Vol. 30, No. 3, (1970), pp. 607-610.
- [32] et al., H. Joseph F., *Multivariate Data Analysis: A Global Perspective*, 7th ed. Upper Saddle River: Prentice Hall, (2008).
- [33] R. Scherer, S. K. Howard, J. Tondeur, and

- F. Siddiq, "Computers in Human Behavior Profiling teachers' readiness for online teaching and learning in higher education: Who's ready?," *Comput. Human Behav.*, Vol. 118, No. (2021), p. 106675.
- [34] D. R. Compeau and C. A. Higgins, "Computer self-efficacy: Development of a measure and initial test," *MIS Q.*, Vol. 19, No. 2, (2012), pp. 189-211.
- [35] J. Pallant, *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge, 2020. G. Eason, B. Noble, and I. N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions," *Phil. Trans. Roy. Soc. London*, Vol. A247, (1955), pp. 529-551.

Follow this article at the following site:

Mohd Hafizul Ismail, Nurashikin Saaludin, Basyirah Che Mat & Siti Nur Dina Haji Mohd Ali. An Investigating Malaysian Pre-University Students' Acceptance and Use of Microsoft Teams for Online Learning During Covid-19 Pandemic. *IJIEPR* 2023; 34 (1) :1-14
URL: <http://ijiepr.iust.ac.ir/article-1-1639-en.html>

