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The Relationship of Web-Based Learning among Academic Staff in TVET Institutions

Habsah Haji Mohamad Sabli[1], Mohamad Fardillah Bin Wahi[2], Sari Lestari Zainal Ridho[3] & Dayang Hummida Binti Abang Abdul Rahman[4]

[1]Politeknik Mukah Sarawak, Malaysia, [2]Politeknik Negeri Sriwijaya, Indonesia, [3]Universiti Teknologi Mara, Mukah Branch, Sarawak, Malaysia

Corresponding Author Email: habsah@pmu.edu.my

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Abstract

The use of web applications at Polytechnic Mukah Sarawak (PMU) involves not only teaching and learning but also the management of the institution. MS Team is fully utilized during COVID-19 among staff and students to facilitate discussion, teaching, and learning sessions. Nonetheless, one of the difficulties that academics and students encounter is internet networking. MS Teams are still used by staff where internal and foreign meetings are held. As a result, this study is being conducted to investigate the relationships between the factors that impact the adoption of Microsoft Teams among PMU instructors. Data were collected in the first quarter of 2022 using a purposive sample approach, and 103 respondents satisfied the study's requirements. The partial Least Squares Structural Modelling approach was used to analyse the data. According to the data processing results, Facilitating Conditions (FC) and Perceived Ease of Usage (PEOU) were significant and had a good influence on the adoption of MS Team among PMU instructors. The implications of these findings are that MS Teams should be improved and maintained for facilitating teaching and learning, meetings, and others.

Keywords: MS Team, Staff, Internet, Facilitating Conditions, Perceived Ease of Use

Introduction

In recent years, there has been a notable increase in the focus on the correlation between web-based learning and technical and vocational education and training (TVET) institutions. Web-based learning, often known as online learning, encompasses the utilization of technology to aid educational processes conducted over the internet. On the other hand, technical and vocational education, and training (TVET) schools primarily emphasize the provision of practical skills and knowledge necessary for learners to succeed in the workforce. The COVID-19 pandemic has underscored the imperative for online learning, as evidenced by the implementation of Movement Control Orders (MCO) in countries such as Malaysia, which

necessitated a transition from hybrid to exclusively face-to-face educational approaches. Nevertheless, the use of online learning platforms such as Microsoft Teams has experienced a decline in acceptance among both students and educators because of the return to in-person instructional sessions. However, the practice of conducting internal and foreign meetings persists using MS Teams as an online platform. Numerous research papers have underscored the advantages of utilizing web-based learning platforms inside Technical and Vocational Education and Training (TVET) schools. Abdul Wahhab and Al-Shumaimeri (2020) conducted a study that demonstrated that the utilization of web-based learning has the potential to improve the overall quality of education and broaden the scope of students' learning experiences. This platform offers students a diverse array of resources and affords them the autonomy to engage in self-paced learning. Furthermore, the efficacy of web-based learning in augmenting students' practical skills has been substantiated by the empirical investigation conducted by (Sathish and Rajendran, 2020). The researchers discovered that the utilization of web-based learning platforms enhances students' proficiency in technical abilities and their capacity to effectively apply theoretical information in practical, real-world contexts. Notwithstanding the advantages, there are obstacles that necessitate attention in the execution of web-based education. The problems encompass various aspects such as digital literacy, technical infrastructure, and the necessity for well-designed instructional strategies to guarantee engaging and efficient online learning encounters. Several obstacles to the effective utilization of Microsoft Teams pertain to a deficiency in understanding the operational intricacies of the platform, constrained internet accessibility or a restricted user base, and the imperative requirement for a dependable internet infrastructure. Moreover, it is worth noting that Microsoft Teams may not be optimal for specific course formats, particularly those that rely heavily on laboratory-based activities. This might potentially result in social segregation and hinder effective communication between students and instructors. Considering the challenges, the objective of this study is to investigate the interconnections between various variables that influence the adoption of Microsoft Teams within the lecturer community at Polytechnic Mukah Sarawak (PMU). In recent times, educational institutions have increasingly relied on web applications to facilitate various aspects of academic life. Polytechnic Mukah Sarawak (PMU) is no exception, where the integration of Microsoft Teams (MS Teams) has transformed teaching, learning, and administrative processes. However, amidst the benefits, challenges related to internet connectivity persist, affecting the seamless adoption of MS Teams among instructors. Understanding the factors influencing MS Teams adoption is pivotal for enhancing its efficacy and ensuring its sustained utilization within the institution. Through an examination of these associations, the research endeavor seeks to offer valuable perspectives on enhancing and sustaining the implementation of MS Teams to assist educational endeavors at PMU.

Methodology

The research employed a cross-sectional research design, which entails gathering data from a sample of individuals at a particular moment in time. The researcher used purposive selection, a non-probability sampling technique, to choose the sample. This approach involves the researcher intentionally selecting individuals who meet specified criteria, such as their expertise or experience in a particular subject. A total of 103 academicians from diverse academic departments at Polytechnic Mukah Sarawak (PMU) participated in the study. The data collection process involved the administration of a questionnaire, which was designed based on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and

Use of Technology (UTAUT) models. The survey instrument used Likert scale items, which enabled respondents to express their degree of agreement or disagreement with a series of propositions. The study encountered difficulties in terms of the distribution of the questionnaire to all instructors at PMU, potentially impacting the validity of the findings. In addition, the study employed the table developed by Krajie and Morgan (1970) to ascertain the right sample size, ensuring enough participants for the research endeavor. The researchers allocated a one-month period for professors to finish the questionnaire, which was delivered to them in a confidential manner. The process of collecting data spanned three weeks to build a comprehensive questionnaire. The duration of time allocated for the completion of the questionnaire may have had an impact on both the rate of response and the dependability of the data acquired. Hence, meticulous data gathering methodologies were implemented to guarantee the precision of the sampling procedure. The data that was gathered was subjected to analysis utilizing widely used statistical methods, which encompassed the use of SPSS (Statistical Package for the Social Sciences) Version 26. The researchers utilized the partial least squares structural equation modelling (PLS-SEM) method to analyze the associations between variables through quantitative descriptive techniques. Partial Least Squares Structural Equation Modelling (PLS-SEM) is a commonly employed analytical approach for evaluating the transparency of a given model. The evaluation of the Partial Least Squares Structural Equation Modelling (PLS-SEM) model encompassed the examination of both the outer model, which included the assessment of external loading values, extracted mean variance, and composite reliability, as well as the structural model, which involved the examination of route coefficient values and R-square. The variables in question underwent reliability evaluations, and the resulting Cronbach's alpha values exceeded the threshold of 0.60. This indicates that the measures used were deemed good and reliable. As an illustration, the outcomes of the reliability test indicated Cronbach's alpha coefficients of 0.843 for MS Team Adoption, 0.823 for Facilitating Conditions, and 0.907 for Perceived Ease of Use (PEOU). In conclusion, it can be inferred that the given evidence supports the stated hypothesis.

Results and Discussion

Descriptive Statistic

Table 1

Demographic respondent profiles

Categories	Items	Frequency	%
Gender	Male	45	43.7
	Female	58	47.1
Marital Status	Single	32	31.1
	Married	71	68.9
Teaching Experiences	< 1 year	35	34.0
	1-3 years	6	5.8
	4-6 years	3	2.9
	7-9 years	6	5.8
	10-12 years	12	11.7
	>12 years	41	39.8
ICT Knowledge	Very Good	8	7.8
	Good	46	44.7
	Moderate	47	45.6
	Poor	1	1.0
	Very Poor	1	1.0

Table 1 displays information about the demographic profiles of lecturers. The survey included 43.7% of male lecturers and 47.1% of female lecturers. More than half of the respondents (71.0%) were already married, and more than 12 years (39.8) of teaching involvement. Half of the respondents (45.5%) have good ICT knowledge, while only 1% have poor ICT knowledge.

Validity and Reliability Test

Table 2

Validity and Reliability Test

Item Description	Outer Loading	AVE	CR	Cronbach's Alpha
MsT1	0.631			
MsT2	0.740			
MsT3	0.788			
MsT4	0.839	0.527	0.883	0.843
MsT5	0.560			
MsT6	0.557			
MsT7	0.890			
PEOU1	0.860			
PEOU2	0.878			
PEOU3	0.918	0.731	0.931	0.907
PEOU4	0.783			
PEOU5	0.832			
FC1	0.754			
FC2	0.726			
FC3	0.791	0.585	0.876	0.823
FC4	0.760			
FC5	0.792			

Table 2 shows the *validity and reliability tests that meet the requirements, which consist of* AVE, CR, and Cronbach's Alpha values for the SEM-PLS model. In other words, the criteria of internal consistency and convergent validity are met. All *outer loading* is still above the cut-off value (0.50), AVE is more than 0.50, CR is above 0.70, and *Cronbach's Alpha* is above 0.60 (*cut-off values*).

Table 3

Cross-Loading Test Result

	MsT	PEOU	FC
MsT1	**(0.631)**	0.869	-0.406
MsT2	**(0.740)**	-0.634	0.063
MsT3	**(0.788)**	0.800	-0.015
MsT4	**(0.839)**	0.082	-0.097
MsT5	**(0.560)**	-0.659	0.312
MsT6	**(0.557)**	-0.997	0.139
MsT7	**(0.890)**	0.166	0.057
PEOU1	-0.092	**(0.860)**	-0.092
PEOU2	0.022	**(0.878)**	-0.077
PEOU3	0.069	**(0.918)**	0.144
PEOU4	-0.231	**(0.783)**	0.000
PEOU5	0.214	**(0.832)**	0.018
FC1	0.068	-0.038	**(0.754)**
FC2	0.082	-0.008	**(0.726)**
FC3	-0.102	0.387	**(0.791)**

FC4	-0.002	-0.204	**(0.760)**
FC5	-0.036	-0.147	**(0.792)**

In Table 3, each outer loading in the specified configuration has a greater value than the outer loading in another construct. It is concluded that the validity discriminant of the SEM-PLS model is fulfilled. Discriminant Validity is measured from Cross Loading ($L > L_{others}$) and Fornell Locker Criteria (√AVE Y I> Correlation Y i, Y j). A value given in parentheses and bolded in table 3 is the loading factor symbolized L).

Table 4
Correlation matrix results for Fornell Locker criteria

	MsT	**PEOU**	**FC**
MsT	**(0.742)**	0.649	0.585
PEOU	0.649	**(0.874)**	0.686
FC	0.585	0.686	**(0.765)**

In Table 4, it is seen that each row of the matrix is generated with an √AVE value of the construct that has a value greater than the correlation values of the two different configurations. It is also concluded that the validity discriminant of the SEM-PLS model is fulfilled.

Interpretation of Path Coefficients in SEM

Hypothesized Paths	**Estimate**	**P-value**	**Result**
H1: PEOU -> MsT	0.218	0.010***	Significant
H3: FC -> MsT	0.281	0.001***	Significant

Note: ***, **, and * denote the two-tail statistical significance at 1%, 5%, and 10% respectively
Table 5: The Connection Path among the Constructs.

Table 5 displays the outcomes of hypothesis testing. Table 5 indicates the outcomes of hypothesis testing in kin to numerous constructs. All two hypotheses were hypothesised with a p-value of <0.05.

Conclusion

In summary, the objective of this study was to investigate the associations between various factors that influence the adoption of MS Teams among lecturers PMU. The findings of this study highlight the pivotal roles of Facilitating Conditions (FC) and Perceived Ease of Usage (PEOU) in driving MS Teams adoption among PMU instructors. The significant influence of these factors underscores the importance of addressing infrastructure challenges and ensuring user-friendly interfaces to enhance MS Teams adoption. The implications of these findings extend to the optimization of MS Teams for facilitating teaching, learning, and administrative activities at PMU. By acknowledging and addressing the identified factors, PMU can leverage MS Teams effectively, thereby fostering a conducive environment for academic collaboration and innovation. The conclusions align with prior research investigations carried out in 2009 and 2020. The research additionally emphasizes the significance of instructors' information and communication technology (ICT) proficiency in

promoting the integration of MS Teams into educational instruction and student engagement. Furthermore, it underscores the capacity of web-based education to augment educational benchmarks and instruction in TVET establishments by affording students the opportunity to avail themselves of up-to-date information and resources, as well as fostering dynamic and cooperative learning. The adoption and utilization of web-based learning systems in TVET institutions are subject to the effects of multiple factors. These elements encompass user characteristics, perceived utility and simplicity of use, social influences, and resource availability. To optimize the advantages of web-based learning, it is imperative to consider the following criteria throughout the design and implementation of web-based learning systems: This encompasses the provision of sufficient training and support for both students and teachers, the development of interfaces that are easy to use, and the establishment of a conducive learning environment that fosters collaboration and engagement. Additional investigation is required to delve into the efficacy of web-based learning in TVET institutions and ascertain the most efficacious approaches for fostering the acceptance and utilization of these platforms. Furthermore, in the aftermath of the pandemic, it is imperative to regularly enhance the utilization of MS Team to address the changing requirements of users and facilitate effective online education. The following recommendations are suggested: The present study's findings suggest the following recommendations: Offer a complete array of training programmed and support services. Provide training programmed aimed at enhancing the ICT knowledge and abilities of lecturers, with a specific emphasis on optimizing the utilization of MS Teams for instructional purposes. Offer continuous assistance to effectively manage and resolve any obstacles or complexities that may arise throughout the process of adoption. To optimize the user experience, it is imperative to consistently enhance and refine the MS Team platform, with a focus on user-friendly interfaces, dependable internet connectivity, and superior audiovisual capabilities. This response will discuss potential technological challenges and limits that could impede the adoption and utilization of MS Teams. Promote a collaborative learning environment by fostering active engagement and interaction between lecturers and students, facilitated using MS Teams. Encourage and foster active engagement, meaningful discourse, and the exchange of knowledge to optimize the educational process. Conduct further research: This study aims to investigate the efficacy of web-based learning within Technical and Vocational Education and Training (TVET) schools, with a particular focus on evaluating its impact on learning outcomes, student engagement, and satisfaction. Conduct a comprehensive examination of supplementary variables that could potentially exert an impact on the adoption and utilization of MS Teams, including individual attitudes, organizational support, and perceived benefit.

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