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The Role of Technology Acceptance Model on WhatsApp's Official Usage in Malaysian HEIs

Rana Mohsin Ali, Anuar Shah Bin Bali Mahomed, Raja Nerina Raja Yusof, Muhammad Irfan Afzal, Ahmad Adzri Bin Abdul Halim Shah

Abstract: ***The revolutionary developments in information and communication technologies have drastically changed the way we communicate in our personal as well as professional life. Traditionally email was considered as formal mean of communication in organisations but now a days its common to use social networking apps for official communication. WhatsApp in this regard have so much importance as it is being used in various industries because of its security, immediacy, and easy to use features. This paper studies the role of technology acceptance model (TAM) on adoption of WhatsApp for official communication and information sharing. The sample was collected from 328 respondents from 10 Malaysian universities using survey technique. The data was analysed using SMART-PLS. The findings of the research confirm that perceived usefulness and perceived ease of use are the key constructs for adoption of WhatsApp as channel for official communication. Furthermore, the limitations and future directions of the study are also recommended.***

Keywords: WhatsApp, SMART-PLS, Technology Acceptance Model, Malaysian universities, Official Communication, Social Networks

I. INTRODUCTION

The revolutionary developments in information and communication technologies have drastically changed the way we communicate in our personal as well as professional life. Traditionally email was considered as formal mean of communication in organisations but now a days it's common to use social networking apps for official communication. Many organisations have adopted latest channels of communication according to their needs and demands. These channels include social media and social network like Facebook, LinkedIn, WhatsApp etc.

This study is conducted in Malaysia and Malaysians are considered as digital frontrunners when it comes to usage of WhatsApp (Star, 2016). According to a survey done by Telenor Research Group, 97 percent of Malaysian mobile phone users use WhatsApp daily.

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1.1 WhatsApp

Jan Koum and Brian Acton who worked for twenty years at Yahoo, later founded WhatsApp. WhatsApp joined Facebook in 2014 but continued to operate as a separate app with a laser focus on building a messaging service that works fast and reliably anywhere in the world (WhatsApp.com, 2019).

The name WhatsApp is a pun on the phrase What's Up which means "What's happening" or "What's the matter"- a phrase generally used to ask how about of friends, family, and colleagues.

WhatsApp started as an alternative to SMS. Now it supports sending and receiving a variety of media: text, photos, videos, documents, and location, voice calls, video calls and conference calls etc. WhatsApp messages and calls are secured with end-to-end encryption, meaning that no third party including WhatsApp can read or listen to them.

WhatsApp (WhatsApp.com, 2019) is the world's most popular messaging application, used by tens of millions of people daily (Statista, 2019). Ostensibly a secure multimedia messaging tool, in the last few years we have seen WhatsApp repurposed for the classroom (Bouhnik & Deshen, 2014), for young people sourcing credit in Durban, to connect amateur cooks with professionals, to monitor election fairness in South Africa and even for issuing court summons in India (Daniel et al., 2019), to name just a few examples. WhatsApp offers a low-cost and effective way for organisations, institutions and businesses to engage with clients, customers and employees (Daniel et al., 2019). Church and Oliveira, (2013) in a qualitative study found that the nature of the messages communicated through WhatsApp is conversational, social and informal. However, literature points out that these informal channels are now being used for formal communication within organisations because of cost, social influence, nature/intent, immediacy, sense of connection and reliability (Church & Oliveira, 2013). Especially in Malaysian context where 97 percent of the population uses this app (Star, 2016), it is important to study the key adoption factors.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2. 1 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was introduced by Davis in year 1989 and despite passing three decades this model is still being used aggressively in the adoption studies in Information System research.

This model has two main antecedents which according to Davis (1989), are the main factors to adopt or use any system or new technology. These antecedents are perceived ease of use and perceived usefulness.

Perceived Usefulness (PU)

"The degree to which a person believes that using a particular system would enhance his or her job performance (Davis, 1989).

Perceived Ease of Use (PEoU)

"The degree to which a person believes that using a particular system would be free from effort" (Davis, 1989).

TAM is basically adaptation of theory of reasoned action which is custtomized to to study the user's behaviour to adopt a new system/technology. Over years, this model have been studied in a variety of contexts, therefore it has become well established as a robust, powerful, and parsimonious model for predicting user acceptance (Rondan-Cataluña, Arenas- Gaitán, & Ramírez-Correa, 2015). Despite of more than 30 years, the model is still being used extensively in the IS research in general and in Malaysian context in particular (Fang, Kayad, & Misieng, 2019; Yuh et al., 2018).

This study uses the actual WhatsApp usage rather than the intention to use it on the assumption that if a person intends to use WhatsApp, he will definitely used it (Mahomed et al., 2018; Ramayah, Ignatius, Aafaqi, & Pinang, 2005).

2. 4 Hypotheses

Davis (1989) defined the primary relationship where perceived ease of use affects perceived usefulness (Davis, 1989). Moreover, in turn, PEOU and PU affect the technology adoption of individuals, and many researchers have confirmed this relationship for many years. Davis (1989) developed a scale for content validity and reliability to test the constructs of perceived usefulness and perceived ease of use with a sample of 152 users and four application programs. The results of the study suggest that perceived ease of use could be a cause leading to perceived usefulness and a determinant of intention to use, which will lead to actual usage. Davis called for more research on the subject, which he went on to conduct in later years (Venkatesh & Davis, 1996; DuPree, 2015). Based on this basic argument, the following statements are being hypothesised.

Hypothesis 1: "Perceived ease of use has a significant relationship with perceived usefulness for WhatsApp usage in Malaysian universities."

Hypothesis 2: "Perceived usefulness has a significant relationship with WhatsApp usage in Malaysian universities".

Hypothesis 3: "Perceived ease of use has a significant relationship with WhatsApp usage in Malaysian universities".

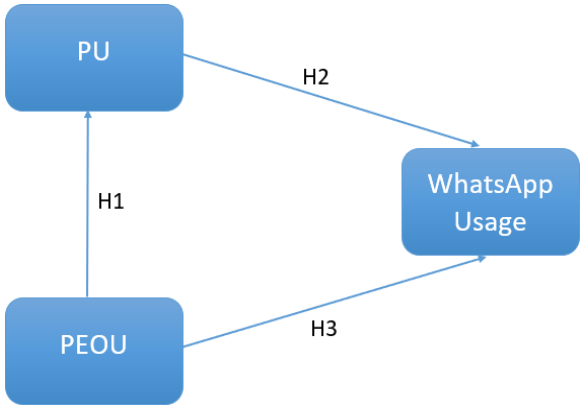

Figure 1 – Technology Acceptance Model (Davis, 1989)

III. METHODOLOGY

Survey Design & Sampling

This research falls under positivist paradigm of research with deductive approach as it involves quantitative survey methods. According to Babbie (2007), for conducting a descriptive study with a large population, the survey method is the best method for direct observation.

Survey was conducted from five public and five private universities in Klang valley Malaysia. A total of 328 useable responses were collected.

Instrument Development

In the literature, there are many surveys, which have been developed for the study of Technology Acceptance Model. This study also adopts the basic survey instrument developed by Davis (1989) and Hart and Porter (2004).

The survey consists of 12 questions on 5-point Likert scale. Also, the questionnaire has around eight demographic questions about age, gender, race, education level etc.

Section 1: Demographic information

Section 2: Statements related to TAM WhatsApp usage

This 5-point Likert scale was used for Section 3, while a number of defined response choices were used for Sections 1 and 2.

Before proceeding to final data collection, pretesting and pilot testing of the questionnaire was conducted to confirm its acceptability and understandability by the targeted population.

IV. DATA ANALYSIS

The analysis in SMART PLS consists of two stages:

Measurement Model Analysis

The measurement model shows the relationship between constructs and items, the correlational relationship between constructs.

Measurement model analysis follows tests for internal conistency reliability (composite reliability, cronbach's alpha) , indicator reliability (loadings/weights), convergant validity (AVE) and discriminant validity. Foloowing are the results of measurement model analysis:

Table 1: Results of Measurement Model Analysis

Construct	Indicator(s)	Indicator Reliability (Loadings)	Composite Reliability	AVE	Convergent Validity	Discriminant Validity
Perceived Ease of Use	PEoU1	0.898	0.913	0.68	Yes	Yes
	PEoU2	0.855				
	PEoU3	0.824				
	PEoU4	0.805				
	PEoU5	0.728				
Perceived Usefulness	PU1	0.877	0.938	0.75	Yes	Yes
	PU2	0.908				
	PU3	0.836				
	PU4	0.892				
	PU5	0.814				
hatsApp's Official Usage	U1	0.904	0.896	0.81	Yes	Yes
	U2	0.898				

Before proceeding for the measurement model analysis, a pretest for constructs was conducted to determine which indicators were useful for the construct's measurement. To identify the useful indicators, Hair et al. (2017) suggested that a threshold value of 0.708 for factor loadings. The pretest shows that all indicators have higher loading than the threshold value.

The value of composite reliability falls between 0 to 1, wherein the values ranging from 0.60 to 0.70 being considered as acceptable in exploratory research (Bagozzi, 1988), while values ranging from 0.70 to 0.90 are considered as satisfactory in advanced stages of research (Nunnally, 1978).

The table 1 shows the composite reliability values for Perceived Ease of Use (0.913), Perceived Usefulness (0.938) and WhatsApp usage (0.896) which are higher than 0.60, demonstrates high levels of internal consistency reliability.

According to Fornell and Larcker (1981) and Hair et al. (2017), AVE with values of 0.50 or higher shows high convergent validity among the indicators in the construct. Table 1 shows AVE value for Perceived Ease of Use (0.679), Perceived Usefulness (0.750) and WhatsApp usage (0.812) which shows high levels of convergent validity.

Structural Model Analysis

The structural model analysis evaluates the relationship competencies. Following table describes the results of structural model analysis mentioning beta values and p-values (<0.05).

Table 2: Results of Structural Model Analysis (Hypothesis Testing)

#	Constructs	B	alue s	Results
H1	PEOU → PU	0.34	0.000	Supported
H2	PU→ WAU	0.179	0.000	Supported
H3	PEOU → WAU	0.49	0.000	Supported

Note: Significance level where, *p < 0.05, **p < 0.01, ***p < 0.001.

The results reveal that all the hypotheses had significance relationship with their respective variables. Table above depicts that the relationship between perceived ease of use to perceived usefulness is supported by H1: (β = 0.34, p< 0.000). Next, the relationship between perceived ease of use to WhatsApp usage is supported by H2: (β = 0.179, p< 0.000). H3 showed that perceived ease of use is positively related with WhatsApp usage by (β = 0.49, p< 0.000).

V. CONCLUSION, LIMITATIONS & RECOMMENDATION

This study empirically confirms the role of technology acceptance model on WhatsApp's official usage in Malaysian universities. The findings of the study confirm that perceived ease of use show the strongest relationship with WhatsApp usage, followed by its relationship with perceived usefulness and lastly perceived usefulness with WhatsApp usage. Hence, we can conclude that people use WhatsApp for official communication because they find it easy to use. This result is logically very appealing because WhatsApp provides instant communication and one dose not have to wait for long (sometimes in case of email). Also, with its enhanced features of conference calls (video and audio), documents attachments, and end to end encryption, has made it highly acceptable within the industry and academia.

The limitations of the study are that it has used single source data which may cause biasness. Secondly the study uses cross sectional data which sees the data at one point of time. Lastly the study has been conducted in Malaysia so it has used the application which is mostly used in Malaysian context.

Future study may use data from multiple sources to avoid single source data issues. Also, the future studies may use time horizon scale to see the impact of the adoption over a longer period of time. Lastly the same model can be applied in different countries and different contexts with their respective preferred channel of communication rather than WhatsApp.

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