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Factors in the use of WhatsApp applications in education management in IPTA: a pilot study

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Abstract
In terms of educational management, the WhatsApp application is very popular among the lecturers. Lecturers, on the other hand, were found to be uninterested in using WhatsApp for educational management. The majority of WhatsApp research has focused on students in the context of learning, while this study will focus on educational management among public university lecturers. Before conducting more in-depth research, the goal of this study is to describe the pilot testing method for the proposed model. A pilot study was done to assess the survey questionnaire's applicability and reliability. The data was gathered from 100 Malaysian public university lecturers via an online survey. Before beginning the actual study, the researcher discusses the pilot testing process and methodology that will contribute to the research in this context. The Unified Theory of Acceptance and Technology Use (UTAUT) model has been applied to the proposed new model. The results of the pilot study agreed that Cronbach's alpha ranged from 0.829 to 0.900 for most of the constructs in the proposed model, indicating that they were reliable. As a result, the constructs in the questionnaire are suitable for larger-scale research in the future. The findings of this study are beneficial to the Ministry of Higher Education in determining the reasons for lecturers' use of WhatsApp, including whether they use it for social purposes, to obtain or share information related to university educational management, or to improve the lecture process.

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1. Introduction

In the twenty-first century, social media is becoming increasingly popular (Noorhadi & Tahir, 2017). As a result of the advancement of information and communication technology as well as the revolution in human communication, various communication facilities have evolved today (Idros, 2017). Facebook, WhatsApp, Telegram, Skype, Twitter, WeChat, and other social media programmes have all emerged in recent years. According to Juwita (2017), social media applications will continue to evolve, alter, and often change from time to time.

The most active social media based on number of users was preceded by WhatsApp (24.1%), Facebook (21.8%), Instagram (18.4%), Twitter (4.8%), FB Messenger (3.6%), TikTok (3.4%), Line and Telegram (2.4%), Pinterest (2.3%), Snapchat (1.5%), VK (1.2%), Apple Message, KakaoTalk, Linkedin, Discord (1.1%), and Reddit (1.0%) (Digital Global Statshot, 2021).

Malaysia isn't far behind in terms of social media usage. In Malaysia, social media usage is growing rapidly, regardless of demographic or geographic barriers, whether in urban or rural locations (Shakirah and Shafinaz, 2019). Because this application can expedite relationships, communication, and the ability to reach other users at the same time, it has become the main choice for 80 % to 90 % of WhatsApp application use among teens (Subramanian, 2017).

According to Safwan and Norazan (2019), the WhatsApp application's range of features and applications has helped it develop a footing among users. Its functions include sending text, pictures (from a gallery or camera), audio, video, files or documents (PDF, Microsoft Word, Microsoft Excel, and Microsoft PowerPoint), making audio and video calls individually and in groups, sending audio messages, sharing location via GPS, and low-cost links to web addresses (Chaputula et al., 2020). Users can also use emojis in their conversations and customise their profiles with their name, photo, status, and other personal information.

Following the trend of WhatsApp users in Malaysia, public university lecturers are increasingly using this application. In education management at public universities, the WhatsApp application also plays an essential role among lecturers. According to Saleh et al. (2018), university lecturers use WhatsApp in matters related to educational management in universities. They may receive instructions or information beyond the working hours, but the frequency is lower than during working hours. Beyond the working hours, however, WhatsApp instructions and content are focused on instructions related to imminent activities or requesting fast feedback.

In general, the WhatsApp application is used in university administration to communicate information, discuss, provide orders, receive feedback on actions, track job progress, and organize work and decision-making procedures involving minor issues (Saleh et al., 2018). Despite the fact that the WhatsApp programme is widely used as a communication tool, it has not been regarded as an appropriate medium for large-scale discussions that still require face-to-face interaction.

2. Purpose of the pilot study

Pilot studies are smaller studies that are undertaken preparatory to larger studies (Eldridge et al., 2016). A pilot test is an analysis carried out on a smaller scale to ensure that all the required studies will go well. According to Yin (1989), the pilot research would assist the investigator in improving the data plan derived from the data contents as well as the applicable methods. This pilot study's primary purpose was to test the questionnaire. A pilot study aims to test the suitability of the study instrument, evaluate whether the research protocol is realistic and viable, determine whether the research methodology is reasonable and viable, identify logistical concerns, gather early findings, and assess the effectiveness of the sample framework, as well as methodologies, are productive, determine the size of the sample, and persuade the funding organization that the

main research is possible and worthwhile (Van Teijlingen & Hundley, 2002). Moore et al. (2011) states that, according to previous study evaluations, pilot studies should be done to detect future concerns about the number of respondents, method of data collection, sampling procedures, data processing, and analysis of data. The majority of research papers are published in healthcare (Lancaster, 2015), with only a few in other sectors (Van Teijlingen & Hundley, 2002). According to Eldridge et al. (2016), further pilot studies should be published in order to share information.

This pilot study was conducted with the following goals in mind:

a) Prepare a questionnaire to measure the four main factors of using the WhatsApp application in educational management: performance expectation, effort expectation, social influence, and facility condition.
b) To analyze the question's reliability and validity.

The following research questions will be addressed as part of the pilot study:

a) Is the questionnaire designed capable to measure objectives?

3. Methodology

Based on a review of previous publications, a framework is presented as illustrated in Figure 1. The Unified Theory of Acceptance and Use of Technology was used to build the foundation for this study (Venkatesh et al., 2003). Venkatesh et al. (2003) developed the UTAUT theory to measure the success of new technology, understanding the elements that drive technology acceptance and also being able to explain user behavior in embracing a technology (Venkatesh et al., 2003). UTAUT theory combines eight major theories of user acceptance, such as TAM, Motivation Model, Planned Behavior Theory, Combination of TAM and TPB, PC Usage Model, Innovation Diffusion Theory, and Social Cognitive (Venkatesh et al., 2003).

According to the UTAUT model, four direct variables affect technology use behavior: performance expectancy, effort expectancy, social influence, and facilitating condition (Baru et al., 2014). This study's model is adapted from UTAUT theory in order to investigate the integration of selected variable factors and their significance to WhatsApp usage in public university management.

The model below consists of four independent variables: (1) performance expectation, (2) effort expectation, (3) social influence, and (4) facilitating condition in the use of the WhatsApp application. The use of the WhatsApp application is the dependent variable. Behavioral intention becomes a variable mediator.

The purposive sampling technique was selected because the participants of the study are those in the ideal position to deliver the relevant information (Sekaran and Roger, 2016). The participants of this study were lecturers from public universities. Therefore, a sample for the pilot study was collected from a public university, namely Universiti Pendidikan Sultan Idris (UPSI). The following criteria were used to select respondents: (1) respondents must work in the field of education management, UPSI, and (2) respondents must use the WhatsApp application.

The researchers measured the face validity and content validity of the instruments that were adapted from other sources before completing the pilot study. The term "face validity" refers to the validity of a measuring instrument that is "visible on the surface" (Ahmad and Awang, 2009). To look at it another way, face validity examines the instrument in terms of terminology accuracy and appropriateness, sentence structure and language use, neatness of format, and clarity of words used in the questionnaire (Baba, 1992). To obtain face validity, the questionnaire for this study was reviewed by two lecturers from the field of language studies at the Institute of Teacher Education, Ipoh Campus.

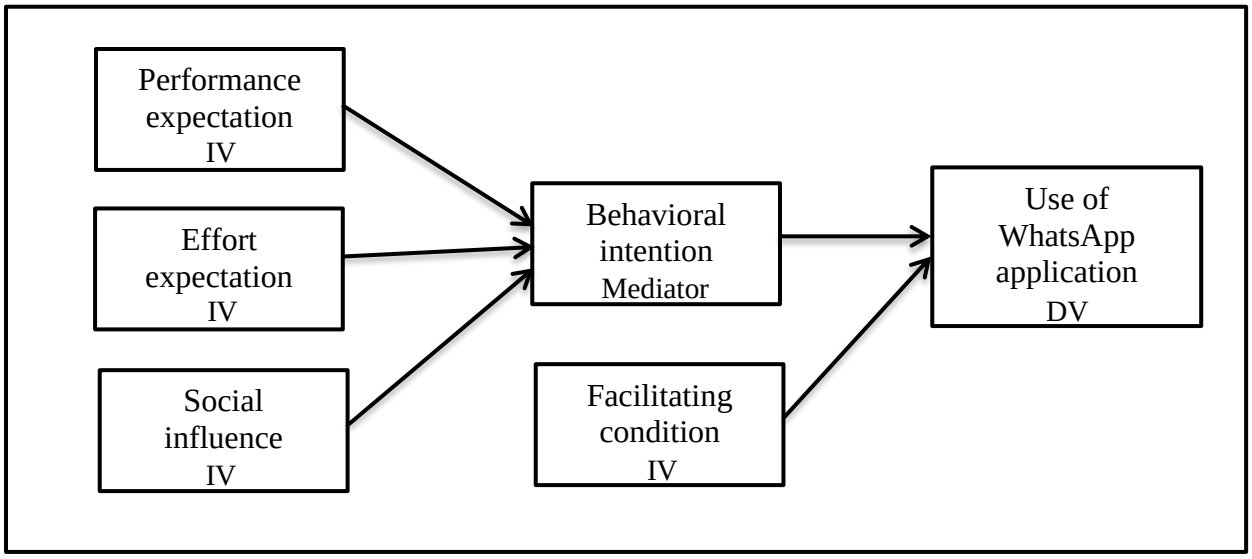

Figure 1. Conceptual framework of the study.
Source: Adapted from the UTAUT model (Venkatesh et al., 2003)

Content validity refers to the process of strengthening a study's content so that it is relevant to the research question (Van Teijlingen and Hundley, 2002). The researchers consulted nine experts, who are also university lecturers who specialise in educational management, to confirm that the content was accurate. The dean of the UPSI Institute of Graduate Studies formally appoints each panellist. Each panellist is formally appointed by the Dean of the UPSI Institute of Graduate Studies. The items and instruments should be evaluated by the members of the panel. These experts provided their opinions and comments on the content of each of the questionnaire's dimensions. Finally, depending on their feedback, improvements were made to the questionnaire. The questionnaire was modified as a result of the pre-testing. Pre-test data were used to revise items in order to increase face and content validity as well as dependability. Table 1 shows the content of the study instrument based on the instrument's source.

Gender, age, race, experience as a lecturer, and experience of using the WhatsApp application are all included in Section A of the questionnaire, which is related to demographic information about the respondents. This respondent demographic information instrument was designed to obtain information about the study respondents. The nominal scale was used to find out the demographic characteristics of the study respondents.

Meanwhile, Section B has 17 items related to WhatsApp application acceptance factors from the aspect of performance expectations. This instrument was adapted from the items constructed by Venkatesh et al. (2003). Performance expectations refer to the level of belief that using mobile technology can help improve user performance (Venkatesh et al., 2003). The lecturers' performance expectation in this study is the level of trust that instructors have in the WhatsApp application to help them facilitate education management at the university. Researchers have adapted several items from the instruments of Venkatesh et al. (2003) by paying attention to the content of items appropriate to the current management of education in Malaysian public universities. All items in this section are presented in the form of positive statements.

Table 1. Contents of study instruments based on instrument sources

Construct/ Dimension Variables	Number of items	source	Scale
SECTION A	9		
SECTION B			
Performance Expectation	17	Venkatesh et al. (2003)	Likert scale seven points
Perception of Usefulness (Davis, 1989)	5		
Extrinsic Motivation (Davis, 1992)	3		
Job-fit (Thompson, 1991)	4		
Relative Advantage (Moore & Benbasat, 1999)	2		
Expected Results (Compeau & Higgins, 1995)	3		
SECTION C			
Effort Expectation	8	Venkatesh et al. (2003)	Likert scale seven points
Perception of Usability (Davis, 1989)	4		
Ease of use (Moore & Benbasat, 1999)	4		
SECTION D			
Social Influence	11	Venkatesh et al. (2003)	Likert scale seven points
Subjective Norms (Ajzen, 1991; Davis, 1989)	3		
Social Factors (Thompson, 1991)	5		
Image (Moore & Benbasat, 1999)	3		
SECTION E			
Facilitating Condition	9	Venkatesh et al. (2003)	Likert scale seven points
Perceptions of Behavioral Control (Ajzen, 1991; Taylor & Todd 1995)	3		
Facilitator Conditions (Thompson, 1991)	3		
Compatibility (Moore & Benbasat, 1999)	3		
SECTION F			
Behavioral Intention	11	Venkatesh et al. (2003)	Likert scale seven points
Attitudes Toward Behavior	3		
Intrinsic Motivation	3		
Affecting Consumption	5		
SECTION G			
Use of WhatsApp application	17	Venkatesh et al. (2003)	Likert scale seven points
Uses of the application	5		
End user satisfaction	4		
Desire or frequency of use	8		
Total items	73		

Section C contains 8 items related to WhatsApp application acceptance factors from the aspect of effort expectation. This instrument was adapted from Venkatesh et al. (2003). The effort expectation refers to the degree of ease with which a system is used (Venkatesh et al., 2003). It refers to some people's belief that information technology may be simply understood. In this study, lecturers must assess their ability to use WhatsApp in conjunction with their existing skills. A

seven-point Likert scale is used in the instrument, with 1 representing strong disagreement and 7 indicating strong agreement. The questionnaire has been modified to suit the use of WhatsApp in education management at Malaysian public universities. This tool is used to determine the impact of effort expectation factors on using the WhatsApp application in university education management. All of the items in this section are provided as positive statements.

From the perspective of social influence, Section D has 11 items related to WhatsApp application acceptance factors. The instrument was also adapted from the questionnaire items constructed by Venkatesh et al. (2003). The usage of technology that is influenced by the support, encouragement, or outside influence of others is known as social influence (Venkatesh et al., 2003). In the context of this study, the importance of social influence for lecturers to use the WhatsApp application in education management in public universities is essential. A seven-point Likert scale is used in the instrument, with 1 representing strong disagreement and 7 indicating strong agreement. This instrument is used to determine the impact of social influence factors on using the WhatsApp application in university education administration. All items in this section are presented in the form of positive statements.

Meanwhile, Section E has nine items related to WhatsApp application acceptance factors from the aspect of facility condition. The instrument was also adapted from the questionnaire items constructed by Venkatesh et al. (2003). A facility condition is when a person believes that there is an organisation and technical infrastructure in place to facilitate the operation of a system (Venkatesh et al., 2012). The lecturers in this survey felt that the organisation and technical infrastructure support the use of the WhatsApp application in education management in public universities. A seven-point Likert scale is used in the instrument, with 1 representing strong disagreement and 7 indicating strong agreement. Adaptation is made to fit Malaysian university educational management. This instrument is used to determine the impact of convenience state factors on using WhatsApp in university education management. This section's items are all provided as positive statements.

From the perspective of behavioural intention, Section F contains 11 items related to WhatsApp application acceptance factors. This instrument was adapted from the Venkatesh et al. (2003) model. A situation in which a person has a strong desire to use an application is known as behavioural intent (Venkatesh et al., 2003). Behavioral intention in this study relates to a lecturer's intention to use WhatsApp for educational management at a university. A seven-point Likert scale is used in the instrument, with 1 representing strong disagreement and 7 indicating strong agreement. In Malaysian public universities, adaptations are made to fit education management. This instrument was used to determine the impact of lecturers' behavioural intentions on the usage of WhatsApp in educational management at public universities. This section's items are all provided as positive statements.

Meanwhile, Section F contains 17 items relating to the usage of WhatsApp throughout education management in public universities. The instrument was also adapted from the questionnaire items constructed by Venkatesh et al. (2003). Attitudes toward consumption could be characterized as a positive and effective consumer response to using a system (Venkatesh et al., 2003). In this study, attitudes towards usage refer to the use of the WhatsApp application among public university lecturers in educational management. A seven-point Likert scale is used in the instrument, with 1 representing strong disagreement and 7 indicating strong agreement. This instrument is being used to investigate the use of the WhatsApp application in public university education management. All of the items in this section are presented as positive statements.

There are 73 closed-ended questions in the overall number of questionnaire items. Respondents would be offered a choice among a range of options provided by the researcher in a closed-ended question. Closed-ended questions were used for over all questions in the survey questions that used nominal and ordinal Likert scales (Sekaran & Roger, 2016). Respondents might make quicker decisions when they are asked closed-ended questions. Closed-ended questions can make data encoding for future analysis easier for academics. A two-line question is any inquiry that leads to a potentially different answer. Such inquiries will be avoided or removed. Even unclear questions, which respondents may not understand, should be avoided because they can lead to incorrect responses. The items in sections B through F used a seven-point Likert scale, with participants rating statements on a scale of 1 (strongly disagree) to 7 (strongly agree).

When creating the survey questions for the pilot study, five elements were taken into consideration, such as the content of the questionnaire items, how well the questionnaire items were written, the appropriateness of the vocabulary used, the pattern and structure of the questionnaire items being asked, the sequence of the questionnaire items, and the private details requested from survey participants. This survey generally tries to follow Sekaran and Roger's (2016) suggestions, as well as Oppenheim's (1992), to keep the questionnaire items brief, concise, and less than 20 words in each statement. The questionnaire items in this study were below 20 words since they followed the rules stated above. In addition, according to Sekaran and Roger (2016), the language and words used in these questions must be adequate for the participants' comprehension level.

For more than two weeks, this pilot study has been carried out. Researchers emailed an online survey (a Google Form) to participants. Before delivering the questionnaire to the pilot study sample, the researcher provided an initial description of the study's aim and objectives so that the study sample was aware of the questionnaire's purpose. The online survey is accompanied by a cover letter that contains information about the survey's aim, the respondents' eligibility, assurances of the confidentiality of the respondents, and instructions for answering the survey questions. In addition, the researchers decided to distribute the survey via social media. With the moderator's permission, the online link is also posted on WhatsApp. When respondents click the link, they will be informed that their participation is completely voluntary and that the questionnaire will take 10 minutes to complete. There were 100 responses to the online survey, and no questionnaires were deleted due to incompleteness. As a result, a total of 100 submissions were taken into consideration in the analysis.

4. Findings and discussions

SPSS software (Statistical Package for the Social Sciences) version 23 was used to examine the 100 data points. The data collected from the questionnaire were analyzed using a frequency test. The majority of respondents were female (66%) and male (44%). The bulk of responses (52%) are in the age range of 46-55 years, followed by 36-44 years (28%), 56-65 years (18%), and 25-35 years (2%). 62% of respondents are Malay, followed by Chinese (23%), Indians (11%), and others (4%). Most respondents have had experience as a lecturer for 6-10 years (42%), followed by 1-5 years (18%), 11-15 years (14%), 16-20 years (12%), 21-25 years (9 %), 31-35 years (8%), and 26-30 years (5%). Most respondents also had experience using the WhatsApp application for 7-9 years (38%), followed by 4-6 years (31%), 10-13 years (30%), and 1-3 years (1%).

It was determined that an online survey (a Google Form) was suitable for gathering data from public university lecturers. Participants' responses via email or WhatsApp indicated that the same steps should be followed in the larger data collection procedure afterwards. According to an online survey, all questions can be answered in ten minutes. As a result, it's assumed that the completion

time is long enough to elicit information from the respondents. Participants are not allowed to move on to the next question in the online survey without answering the preceding question, so there will be no unanswered questions. As a result, data loss or damage to the questionnaire in the main study may be avoided in the future.

Table 2. Respondent demographic information

Demographic	Categories	Frequency (f)	Percent (%)
Gender	Male	34	34
	female	66	66
Age	25-35 years old	2	2
	36-44 years old	28	28
	46-55 years old	52	52
	56-65 years old	18	18
Nation	Malay	62	62
	Chinese	23	23
	Indian	11	11
	Others	4	4
Experience as a lecturer	1-5 years old	75	75
	6-10 years old	18	18
	11-15 years old	42	42
	16-20 years old	12	12
	21-25 years old	9	9
	26-30 years old	5	5
	31-35 years old	8	8
Experience using WhatsApp application	1-3 years old	1	1
	4-6 years old	31	31
	7-9 years old	38	38
	10-13 years old	30	30

Sekaran (1992) states, reliability refers to a measurement's level of consistency, the internal stability of an instrument's ability to consistently produce the same result when the iteration process has been used. The reliability of the instrument is a process that, when repeated, will give the same results (Konting, 2009). Internal reliability is used in this study to assess the consistency of respondents' responses to the variables being measured. To ensure the reliability of the questionnaire instrument, researchers have conducted a pilot study.

This research evaluated the overall consistency of the scale with Cronbach's alpha. The value of Cronbach's Alpha will determine the level of reliability of the instrument. Cronbach's Alpha is one of the most popular methods among researchers for finding instrument reliability values (Hair et al., 2010). According to Mohamed and Fathiah (2007), pilot studies conducted have high instrument reliability if Cronbach's Alpha value exceeds 0.80. Reliability measures range from 0 to 1; values of 0.60 to 0.70 are the lowest values still accepted (Hair et al., 1998).

Most of the constructs in this study had a Cronbach's alpha between 0.884 and 0.963, as shown in table 3. Cronbach's alpha scores for all constructs were more than 0.7, indicating that they were all internally consistent. As a result, item filtering measures to improve reliability are unnecessary. This questionnaire is judged satisfactory based on the Cronbach's alpha coefficient value. Table 3 below shows the Cronbach's alpha reliability values for all constructs.

Table 3. Cronbach's alpha reliability values for each study construct

Section	Construct	Number of items	Alpha value
Section B	Performance Expectation	17	0.963
Section C	Effort Expectation	8	0.884
Section D	Social Influence	11	0.926
Section E	Facilitating Condition	9	0.904
Section F	Behavioral Intention	11	0.930
Section G	Use of WhatsApp Application	17	0.956
Total		73	0.984

Sources SPSS Data

A questionnaire could be used to perform an actual study based on the Cronbach's alpha values acquired. Cronbach's alpha values have been compared using several research studies that used the UTAUT model. Among these, Rahayu (2019) employed three items identical to those in this study, reporting performance expectation with a Cronbach's alpha of 0.88, effort expectation with a Cronbach's alpha of 0.81, and behavioural intention with a Cronbach's alpha of 0.84. Besides, a study by Hazwani (2017), which used almost all the same items as this study (performance expectation, effort expectation, social influence, facility condition, behavioral intentions, and using behavior) reported Cronbach's alpha values ranging from 0.62 to 0.98. Devi et al. (2019) used almost all of the same items in their reliability test, which had an overall Cronbach's alpha value of 0.91. Cronbach's alpha values for performance expectation 0.86, effort expectation 0.88, social impact 0.90, facilitating condition 0.85, intention behaviour 0.92, and usage behaviour 0.89 were found in a study by Indah and Agustin (2019). This study's reliability value is in the same range as previous studies, which is acceptable according to the findings of a previous pilot study.

5. Conclusion

The pilot study conducted is important before conducting a major study on the use of WhatsApp for educational management among public university lecturers. The questionnaire's applicability and favourable response rate indicate that the investigation will be more reliable in the future. Furthermore, pilot studies demonstrate that online questionnaires are an excellent tool for gathering data. The value of pilot studies is highlighted in this study, which contributes to the efficiency of educational management research. The positive reaction from UPSI lecturers during the pilot study demonstrated that this research instrument is appropriate for the main study. Finally, this pilot study shows that UTAUT theory can be an appropriate research framework for researching the use of WhatsApp in educational management among public university lecturers in the context of WhatsApp application use. The importance of a pilot study in terms of enhanced research instrument design is highlighted in this study.

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