

Undergraduate Students' Use of WhatsApp for Educational Purposes: An Approach Based On A Technology Acceptance Model

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Abstract: With over 2 billion users worldwide, WhatsApp is a crucial communication tool for sharing, creating, and spreading information. Thanks to new technology and social media in the twenty-first century, WhatsApp adoption is rapidly becoming a trend in education. WhatsApp is becoming increasingly popular among Malaysian university students, especially as a form of communication between students and teachers. By applying the Theory Acceptance Model (TAM), this study looked into the popularity of WhatsApp among students at the International Islamic University Malaysia (IIUM). An online survey on 159 students was done in August 2021. The students adoption of WhatsApp was measured through three variables that included perceived usefulness, perceived ease of use, and perceived playfulness. The study found that perceived usefulness and simplicity of use of WhatsApp are the main factors that influence the students' usage of WhatsApp. The study concludes that students' heavy usage of social media such as WhatsApp can be a positive contributor to the educational process.

Key words: *WhatsApp, Undergraduate Students, Theory Acceptance Model (TAM), Education, Social Media*

INTRODUCTION

In 2020, there were approximately 28 million social media users in Malaysia, with 46% of its users are in their 20s. (Malaysian Communications and Multimedia Commission, 2020). This implies that Malaysian young adults rely on social media for various objectives. For instance, connectedness, information sharing, entertainment, socialising, and communication, all of which help to make lives easier. Not only that, education and technology are also becoming increasingly intertwined in today's modern world. It can be observed that the teaching-learning process in various educational institutions is moving towards betterment with the help of social media. As cited in Jain [1], social media allows students to access useful educational content and connects them with learning groups and other educational systems that enhance the overall learning process to become more exciting and fun. Additionally, technology offers a window to the rest of the world as well as access to tens of thousands of educational resources.

Globally, WhatsApp is the most widely used social media in over one hundred countries. It has over 2.5 billion active users and is one of the few apps with more than five billion downloads [2]. WhatsApp is an instant messaging app for smartphones created in

2009 by two former Yahoo employees, Brian Acton and Jan Koum. Currently the leading instant messaging application worldwide and increasingly popular among young adults. WhatsApp has the potential to provide cooperation, increase social interaction, interest and motivation, sense of belonging, academic excellence, student-student, and student-lecturer interaction, support learning anytime and anywhere, provide peer support, feedback, and allow for information sharing in education [3]. At the other end of the spectrum, issues on the adverse impact of social media such as addiction, losing focus, use of slang language, crossing the boundaries in personal relations, privacy, and security among its users have raised concerns. Hence, some view this new medium as a threat, while others see it as the path to the ideal.

Therefore, this study will address the usage of WhatsApp among undergraduates by measuring the experiences of students at the International Islamic University Malaysia (IIUM) according to the Technology Acceptance Model (TAM). More specifically, the research asks:

1. What is the extent of using WhatsApp for personal and educational purposes among undergraduates in International Islamic University Malaysia?

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2. Does the perceived usefulness (PU) of WhatsApp influence undergraduates in International Islamic University Malaysia's behavioural intention and actual use of WhatsApp?

LITERATURE REVIEW

With over a billion users, it is undeniable that WhatsApp users are constantly exchanging messages, making voice and video calls, sharing documents and pictures around the world for free [4]. Additionally, students nowadays rely heavily on knowledge and data that are readily available on social networking sites and the internet [5]. Thus, most of their time is spent on social media, including WhatsApp, for various purposes such as communicating with family and friends or exchanging academic materials [6]. As means to provide solid evidence pertaining to the use of WhatsApp as a form of communication, a majority of students in Saudi and Bahrain exhibited a great level of reliance on WhatsApp on a daily basis to achieve communication purposes [7]. In another case study conducted at Sindh University, a vast number of WhatsApp users reflects the application as an effective and affordable platform of communication among students [6]. Additionally, in Malaysia, WhatsApp is also found to be the most widely used social media among undergraduate university students followed by Instagram [5].

Primarily, WhatsApp serves as a tool for students to carry out their social activities such as messaging with their friends or keeping in touch with their family members. According to Vera [8], both physical and online communication improve the quality of interpersonal communication depending on the context and situation. Lopez and Cuatareos in their study also found that the quality of face-to-face and online interpersonal communication is similar for daily conversation [8]. Nevertheless, at times of conflict, online interpersonal communication is deemed more appropriate and effective as compared to face-to-face confrontation. Consistently, university students in Abu Dhabi, United Arab Emirates acknowledged WhatsApp as an effective medium for interpersonal communication [9]. Additionally, it is revealed that for communication WhatsApp is more user-friendly, easy, accessible, and effective since most of the students from the Graduate College of Bhopal use WhatsApp the most compared to Facebook, Twitter and others [10]. Similarly, the study by Chan, Yong and Amira [11] found that private university students in Malaysia preferred WhatsApp for interpersonal communication because of various features such as emoticons to emphasize the message better, group family chats, unlimited voice calls and group video

calls which helps them see the person they communicating with similar to face-to-face communication. Therefore, it can be summarized that WhatsApp is a useful tool for students to socialize and allows the growth of relationships between peers and family.

Secondly, WhatsApp has proven to contribute positively towards students' learning development as it is widely used for attaining knowledge, asking questions and retrieving information [12]. According to Haque and Wok [13], higher education institutions all across the world place great importance on the use of WhatsApp as a study tool. Likewise, Mawarni et. al asserts that WhatsApp has numerous benefits for students' educational process in terms of increasing accessibility, encouraging collaboration, and increasing motivation to learn [14]. For example, WhatsApp groups allow students and lecturers to exchange instant messages, images, audio, video, and documents easily. Further, WhatsApp groups act as a virtual classroom in which students can ask lecturers questions and lecturers can respond to them instantaneously. As evidence, the study by Sasmiadi, Andayani, and Setiawan revealed WhatsApp allows students in Indonesia to collaborate and exchange ideas about education. Interestingly, students who are typically quiet in class appeared more active when conversing and exchanging ideas on WhatsApp [15]. This indicates that WhatsApp enhances students' learning experience positively. In the Malaysian context, most of the engineering undergraduates from a higher learning institute agreed WhatsApp is helpful in communicating and sharing learning content with peers and lecturers. Hence, the study concluded that WhatsApp remains the most used application among the students at the tertiary level (Kumar, Rajamanickam & Sharifah Osman, 2020). Consistently, Haque and Wok also inferred those postgraduate students in International Islamic University Malaysia utilise WhatsApp extensively for academic purposes [16]. Thus, it can be concluded that WhatsApp is a useful tool for students.

THEORETICAL FRAMEWORK

The Technology Acceptance Model or TAM [17] is a widely used model for users' acceptance and usage of technology including WhatsApp [11]. Sing and Srivastava studied the widespread acceptance and usage of social media for travel purposes by Indian outbound leisure travellers through TAM (2019). Additionally, [18] used TAM and included the user's critical mass, social networking site capability, perceived playfulness, and trustworthiness to investigate the adoption of Facebook among the users. In short, TAM was

employed to illustrate and predict the acceptance of IT with the two main variables influencing individuals' use intention and behaviour: perceived ease of use and perceived usefulness. According to this theory, when a user is presented with a new system or technology, a number of variables may influence the decision of how and when the user intends to use it. Primarily, the variables are perceived usefulness (PU) and perceived ease-of-use (PEOU) which determine the unfavourableness and favourableness of a new system or technology [19]. Therefore, the more the users acknowledge that the new technology will make their tasks easier; the more likely they will adapt to it and accept the new technology as being useful [20].

2.4.1 Perceived Usefulness

Perceived usefulness (PU) is defined as the extent to which a person admits that using a system or new technology will improve his or her task delivery [17] [32]. Furthermore, PU denotes the positive outcomes from the technology's features. The advantages may be in the form of physiological, psychological, sociological, or material benefits. This is because every technology, specifically social networking sites, provides a set of core services, as well as unique features and applications to enhance its usefulness. In the current study, the PU refers to the degree to which the students regard WhatsApp as useful thus adopting WhatsApp in their everyday life. Therefore, this research sought to answer the third research question: *Does the perceived usefulness (PU) of WhatsApp influence undergraduates in International Islamic University Malaysia's behavioural intention and actual use of WhatsApp?*

2.4.2 Perceived ease of use

Perceived ease of use (PEOU) is described as the extent which a person agrees that using a system or new technology is effortless that requires no physical and mental effort [17][33]. This concept of least effort can be applied to predict that a social media user will be more appreciative of the minimal effort needed to use the application, understand its features, and use the apps for social media-related tasks like posting and sharing videos. Consequently,

if the users encounter any difficulties such as a hard time understanding, learning or using the new system or technology, the less likely they will use the technology. In the current study, the PEOU of WhatsApp can be conceptualized as the degree to which the students acknowledge WhatsApp as a tool that eases their day-to-day tasks thus accepting WhatsApp. Therefore, this research sought to answer the third research question: *Does the perceived ease of use (PEOU) of WhatsApp influence undergraduates in International Islamic University Malaysia's behavioural intention and actual use of WhatsApp?*

2.4.3 Perceived Playfulness

Perceived playfulness (PP) is clarified as the extent to which the social media-related activities are perceived to be fun and enjoyable. It is an intrinsic belief or motive which is shaped by the individual's experiences of the environment [21]. According to Ifinedo [22], perceived playfulness is a significant predictor of behavioural intention to use web-based technologies. This is because social media users who enjoy social media applications are more likely to find it helpful and beneficial. For instance, using emoticons in WhatsApp increases the enjoyment experience in instant messaging as it allows the users to exchange emotions such as smiling or laughing [23]. Accordingly, sending emoticons that convey laughter and fun can be used to add playful elements to a dull text message on WhatsApp. Hence, in the current study, the PP refers to the degree to which the students perceive WhatsApp as playful and enjoyable to use. The more the student perceives WhatsApp as fun and entertaining, the more likely he or she has a favourable attitude and considerable intention to use WhatsApp. Therefore, this research sought to answer the third research question: *Does the perceived playfulness (PP) of WhatsApp influence undergraduates in International Islamic University Malaysia's behavioural intention and actual use of WhatsApp?*

2.5 CONCEPTUAL FRAMEWORK

Based on the literature and theoretical framework, the following is the proposed conceptual framework of this study.

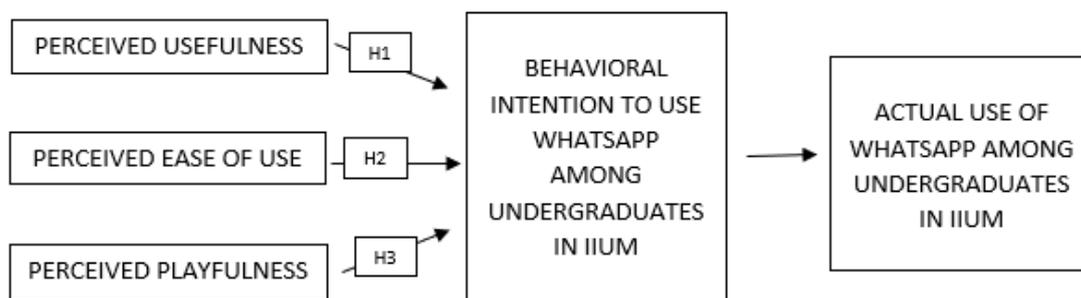


Figure 1: Conceptual framework for factors accepting of WhatsApp

From the conceptual framework above, there are three hypotheses formulated for this study. The hypotheses are:

H1: There is a positive relationship between the perceived usefulness (PU) and the behavioural intention and actual use of WhatsApp among undergraduates in International Islamic University Malaysia.

H2: There is a positive relationship between the perceived ease of use (PEOU) and the behavioural intention and actual use of WhatsApp among undergraduates in International Islamic University Malaysia.

H3: There is a positive relationship between the perceived playfulness (PP) and the behavioural intention and actual use of WhatsApp among undergraduates in International Islamic University Malaysia.

METHODOLOGY

The population of the study is the undergraduate students at Kulliyah (Faculty) of Islamic Revealed Knowledge and Human Sciences (KIRKHS). The total number of students enrolled in the kulliyah is approximately 6000 students, making it the largest kulliyah in IIUM. Stratified random sampling was used to identify the respondents. It is a method of sampling that involves the division of a population into smaller sub-groups known as strata [24]. The sub-groups or strata was arranged according to respondents' shared attributes or characteristics to avoid each sample of the respondents to be equally likely to occur [25]. This study adopted the stratified sampling method as it accurately represents the population studied and reduces the likelihood of researcher bias that would impair the reliability and validity of the research [26]. Demographics of the respondents can be seen in the table 1:

Table 1
Demographics of Respondents

Variable	Category	Frequency	Percentage
Gender	Male	23	14.5
	Female	136	85.5
	Total	159	100.0
Age (years old)	19-20	17	10.7
	21-22	128	80.5
	23-24	14	8.8
	Total	159	100.0
Nationality	Malaysian	148	93.1
	International	11	6.9
	Total	159	100.0

An online survey questionnaire as its research instrument and it comprises four main sections that examine the IIUM undergraduates' opinions about WhatsApp usage, purpose, and factors of acceptance according to the Technology Acceptance Model (TAM).

The first section comprised five questions exploring information on the respondents' demographic characteristics: gender, age, nationality, level of study, programme. The second section consisted of four questions that tested the frequency of WhatsApp usage among IIUM undergraduates. Some of the questions were WhatsApp use, frequency of using WhatsApp per day, time (in hours) spent on WhatsApp per day, the most common time of the day spent on WhatsApp, and numbers of checking WhatsApp on a daily basis. Next, the third section identified the extent of using WhatsApp for personal and educational purposes

among IIUM. It is divided into two subsections: personal and educational purposes with a Likert scale ranging from daily, weekly, monthly, and never. Each subtopic has an equal number of five questions, respectively. Last but not least, the fourth section discovered the factors of WhatsApp adoption according to the Technology Acceptance Model. There are altogether three subsections in this chapter namely: 1) perceived usefulness 2) perceived ease of use 3) perceived playfulness. All questionnaire items for this section were measured using a 5-point Likert scale ranging from "strongly agree" to "strongly disagree".

A pilot study was conducted test the questionnaire's reliability by checking the accuracy and precision of all measurement items. For each construct, reliability was checked based on Cronbach's alpha. The scores for the reliability test are presented in Table 2.

Table 2 Reliability Test for Selected Variables

Section	Variable	Dimension	No. of Items	No. of Items Deleted	Cronbach's Alpha	
					Pilot Study (N = 20)	Actual Study (N =159)
3	Purpose	Personal Education	10	-	0.844	0.832
4	Perceived Usefulness		10	-	0.898	0.850
5	Perceived Ease of Use		10	-	0.955	0.876
6	Perceived Playfulness		10	-	0.922	0.898

FINDINGS

Table 3 shows the purpose of using WhatsApp. The majority of the respondents reported using WhatsApp a lot more for educational purposes (72.08%) as compared to personal use (64.81%). As evidence, the highest percentage of respondents (76.0%) use WhatsApp to communicate with groupmates in order to complete group assignments. More than seven-tenths of the respondent use WhatsApp to form student groups (i.e.: class WhatsApp group/ assignment WhatsApp group)

(71.6%) and exchange educational material and resources related to the course (71.4%). Simultaneously, for personal usage, most of the respondents use WhatsApp to keep in touch with parents and family members (75.6%). However, only half of the respondents use WhatsApp to keep others updated about their life through WhatsApp stories. The rest is likely to use WhatsApp for personal usage such as connecting with specific electronic groups (i.e.: family/society) (66.2 %), to text/call/video call friends to catch up (66.0%) and share videos, pictures, and music files with others (62.2%).

Table 3
Descriptive Statistics for the Purpose of Using WhatsApp

No.	Purpose of Using WhatsApp	<i>M*</i>	<i>SD</i>	%
Personal Purposes				
1	I use WhatsApp to share videos, pictures and music files with others.	3.11	.763	62.2
2	I use WhatsApp to communicate with my parents and family members.	3.78	.473	75.6
3	I use WhatsApp to keep others informed of what's going on in my life (WhatsApp Story).	2.70	.905	54.0
4	I use WhatsApp to chat with specific electronic groups (Mahallah/society/ Family WhatsApp group).	3.31	.772	66.2
5	I use WhatsApp to text/call/video call friends to catch up.	3.30	.792	66.0
Overall Personal Purpose of Using WhatsApp (N = 159)		3.2403	.51350	64.81
Educational Purposes				
6	I use WhatsApp to communicate with my classmates about matters related to courses requirements.	3.59	.539	71.8
7	I use WhatsApp to exchange educational material and resources related to the course.	3.67	.632	73.4
8	I use WhatsApp to form student groups for educational purposes (i.e., class WhatsApp group/ assignment WhatsApp group).	3.58	.630	71.6
9	I use WhatsApp to build good relationships with the lecturers and classmates.	3.38	.710	67.6
10	I use WhatsApp to do discussion with my groupmates in order to complete group projects.	3.80	.418	76.0
Overall Educational Purpose of Using WhatsApp (N = 159)		3.6038	.47493	72.08

Table 10 illustrates the zero-order correlation between WhatsApp usage for educational purposes and three variables in the study: perceived usefulness, perceived ease of use, and perceived playfulness of WhatsApp. There is a very weak, positive relationship between the perceived usefulness of WhatsApp and the usage of WhatsApp for educational purposes ($r = .188, p < .017$). There is also a very weak, positive relationship between the perceived ease of use of WhatsApp and the usage

of WhatsApp for educational purposes ($r = .145, p < .069$). Therefore, hypotheses 1 and 2 are accepted and highly supported by most of the empirical studies investigated. However, there is no relationship between the perceived playfulness of WhatsApp and the usage of WhatsApp for educational purposes ($r = .145, p < .377$). Thus, hypothesis 3 is rejected. Overall, there is a significant, positive relationship between the independent variables and dependent variables.

Table 4

Zero-order Correlation between Purpose of using WhatsApp for Educational Purposes, Perceived Usefulness, Ease of Use and Playfulness of WhatsApp

Variable (N = 179)	WhatsApp Usage for Educational Purposes	Perceived Usefulness	Perceived Ease of Use	Perceived Playfulness
WhatsApp Usage for Educational Purposes	1			
Perceived Usefulness	r = .188. p = .017	1		
Perceived Ease of Use	r = .145 p = .069	r = .650 p = .000	1	
Perceived Playfulness	r = .071 p = .377	r = .535 p = .000	r = .597 p = .000	1

DISCUSSION

The study found that most of the respondents used WhatsApp for educational purposes rather than personal purposes such as socialising with friends and relatives. As for this study specifically, the majority of undergraduates of IIUM use WhatsApp to do group discussions, exchange educational material and resources related to the course, as well as communicate about matters related to courses requirements. Consistently, this finding is similar to previous studies which have proven that WhatsApp is widely used by many university students for educational purposes due to its various technological, social, and educational advantages. According to Afful and Akrong [27], university students of Ghana find WhatsApp helpful in learning Mathematics and had a positive view on the use of WhatsApp for academic pursuits. This is because WhatsApp enables the students to discuss productively among their course mates and enhance their understanding of learning Mathematics. Likewise, law students in Columbia were highly satisfied with the use of the WhatsApp chat group because it strengthens student-teacher relationships through effective communication. In summary, these findings deduced the usefulness of WhatsApp in promoting effective communication (among students and between students and their lecturers) and encouraging collaborative learning through the formation of WhatsApp groups. These benefits and WhatsApp's growing popularity strengthen the need for it to be fully utilised and incorporated to enhance university students' learning experience. Moreover, the theory of the Technology Acceptance Model (TAM) holds significant truth as the positive correlation coefficient (r=.188) of the perceived usefulness of WhatsApp and perceived ease of use (r=.145) indicates the variables as factors that influence undergraduates in International Islamic University Malaysia's behavioural intention and actual use of WhatsApp. As for the perceived

usefulness of WhatsApp, most of the respondents in the present study reported WhatsApp helps students to stay updated with class announcements or group projects through the push notification feature. Further elaborate, WhatsApp push notifications allow its users to receive real-time notifications that appear as a banner on the user's screen. As a result, these reminders and alerts are very useful for students who are constantly on the go as they provide information to the students without having to search for it. In addition, the respondents claimed that WhatsApp saves a lot of time upon sending messages, documents, and audio files related to university courses. Also, WhatsApp is useful in helping the students to multitask by communicating with their groupmates and doing assignments at the same time. Ultimately, multitasking is assumed to be a critical factor for students due to the fact that it increases productivity and saves a lot of time. With that being said, these finding is aligned with the study by Mulyono, Suryoputro, and Jamil which discovered the perceived usefulness of WhatsApp in terms of allowing students to access learning-related information and engage in learning discussions [28]. All in all, this finding concludes the perceived usefulness of WhatsApp in terms of staying up to date with the class announcement, enabling the exchange of course materials, and multitasking as the influence on undergraduates' behavioural intention and actual use of WhatsApp in IIUM. Besides, as for the perceived ease of use of WhatsApp, the majority of the students find WhatsApp easy to use as sending announcements in class WhatsApp group is easier and quicker as compared to other mediums. This is because WhatsApp is less restrictive in terms of the format and its features such as characters and file size isn't as limited as it is with Email or SMS. For that reason, the majority of the students used WhatsApp with the perception that the exchange of information via WhatsApp is simple, immediate, and less of a hassle.

Furthermore, considering today there are lots of smartphones and devices of different brands available in the market, WhatsApp is perceived to be easy since it is downloadable across all kinds of devices. Regardless of the operating system, WhatsApp can be easily downloaded by the students on both Google's Android and Apple's iOS gadgets. Lastly, WhatsApp allows easy and seamless interaction between the students and lecturers. With less format, restrictions, and instant messaging, WhatsApp serves as an imperative tool that enhances student and lecturer interaction. This finding is coherent with the study by [28] [29] [30] [31] which confirms the effectiveness of WhatsApp in promoting better student-lecturer communication and relationship.

However, it is worthy to denote that the perceived playfulness of WhatsApp does not influence undergraduates in International Islamic University Malaysia's behavioural intention and actual use of WhatsApp ($r=.071$). Since the majority of the respondents reported using WhatsApp for educational purposes at the earlier stage of the study, therefore the playful features of WhatsApp such as multimedia (video & image), sticker, emojis, voice notes were not important for the students as it does not enrich nor negatively affect their learning experience. In other words, those features were viewed as accessories rather than the main priority in determining the usage of WhatsApp for educational purposes. Therefore, the unique and playful features of WhatsApp do not influence the university students' behavioural intention and actual use of WhatsApp.

CONCLUSION

Based on the Technology Acceptance Model framework by Davis [17], the findings of the present study support the relationship between the perceived usefulness and ease of use of WhatsApp in influencing undergraduates in IIUM's behavioural intention and actual use of WhatsApp. However, the theory on the perceived playfulness of WhatsApp in influencing undergraduates in IIUM's behavioural intention and actual use of WhatsApp is rejected as there is no significant relationship found. Therefore, it can be noted that the more useful and simpler the social media is, the more likely the undergraduates in International Islamic University Malaysia are going to utilise the technology for educational purposes. Based on the conclusion, the study proposes the integration of WhatsApp in the education system as a supportive technology to enhance the students' learning experience in higher learning institutions and the need for it to be investigated further as an educational tool in the future. As a result, an advanced technological learning environment can be achieved with the

maximization of social media specifically WhatsApp in the education system.

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