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The Most Favourable Mobile Messaging Apps among IIUM Students

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Abstract: ***Mobile messaging applications is rapid adopted globally. They allow mobile users to send messages to individuals or groups for very minimal fee, even some are totally free as long as the smartphones are connected to internet. WhatsApp is one of the top mobile messaging applications among a handful number of applications that have entered the market. The goal of this paper is to investigate the most favourable mobile messaging apps among IIUM students and to provide a feature comparison between a few selected mobile messaging applications. Despite the obvious of being a free application, this paper intends to investigate the other factors causing the widespread adoption of this mobile application especially among students. An online survey was distributed to 52 students from IIUM by using Google Docs to validate which mobile messaging applications are mostly used.***

Keywords: Mobile messaging apps, mobile instant messaging, smartphones, SMS, WhatsApp, features, IIUM

1. Introduction

Mobile messaging applications is not a new technology. It has been widely used ever since the mobile phone technology takes over the telecommunication industry across the world. Traditionally, SMS or Short Messaging Service was first introduced in 1991 to send and receive short text messages to and from mobile telephones [9]. SMS is a mass communications medium used by billions of people around the world ever since. Within just a short span of ten years, a new medium - mobile messaging application has taken over the SMS popularity [7]. Some of these mobile messaging apps are WhatsApp (2009), Line (2011), WeChat (2011), KakaoTalk (2010), Viber (2010), Telegram (2013), and BBM (2009). These applications allow the users to send real-time text messages to individuals or groups of friends at no cost [8]. The evolution of smart phones in the market together with good package of mobile data plans are naturally the simplest reason why the trend has shift from using SMS to mobile messaging apps.

Going back in time, SMS is built into the GSM wireless standard which allows 160 character text messages to be sent to and from any GSM mobile phones, regardless of the service providers they are belongs to. The technology further evolved to Multimedia Service or MMS, where image, video, and sound can be added into the text messages [8].

The basic requirement of a message remains the same when smart phones comes into the picture. Users still need to send and receive images, videos and audios. On top of that, the trend has now included location-based messages with the addition of GPS as a basic feature in most smart phones. It becomes a norm to send messages to individual friend or group of friends without the need to type the details of locations, describing the meeting place, or trying to explain the songs that one hears. Furthermore, it is now free of charge as long as the mobile data plan or wireless connections are active. The focus of this paper discussion will be on WhatsApp Messenger, which was first introduced to the market in 2009 by Brian Acton and Jan Koum, both are former employees of Yahoo [18]. It is then taken over by Facebook on February 19, 2014 [18]. After WhatsApp was first introduced to the market, a lot of other similar mobile messaging apps have been emerged and continuously evolved [4]. Different mobile messaging apps provide different features.

There was a survey done in Utah State University about their use of mobile devices for academic purposes. It was found that 54 % of undergraduate students use mobile devices for academic purposes [6]. In another study, the use of text messaging in higher education classrooms shows that students are positive about using mobile devices in education [12]. This leads to the same conclusion for mobile messaging apps.

The use of mobile messaging apps among students in educational context is as pervasive as for socializing, business, and working purposes. These general observations and assumption on the usefulness of mobile messaging application in the education sector has led to this paper where it focuses on assessing IIUM students' preferences towards which mobile messaging apps. IIUM or International Islamic University Malaysia is a government institution for higher education in Malaysia. The students originate from more than 100 countries representing nearly all regions of the world [1].

The focus is on WhatsApp Messenger as it is considered to be the top among the other mobile messaging apps. Our hypothesis is that almost all IIUM students installed WhatsApp Messenger. To validate this assumption, a survey has been done to know their preferences of mobile messaging apps including the features and security measures of those mobile messaging apps installed in their smart phones. The survey result shows that WhatsApp is the most installed among the students as shown in Figure1 where 98% of students are using WhatsApp as their mobile messaging app. This validated our hypothesis. The detailed survey results will be discussed in Section 3.

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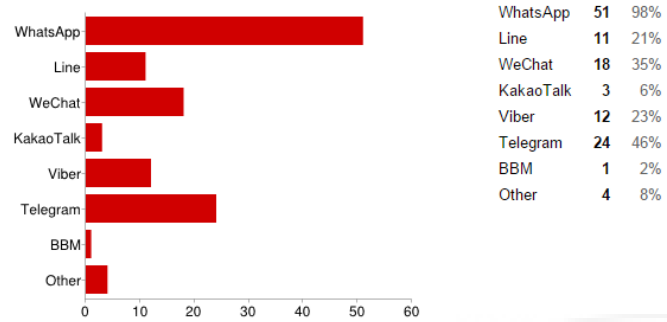

Figure 1: Mobile messaging apps used among IIUM students

2. Mobile Messaging Apps - Features

This section will explain the selected mobile messaging appsused among IIUM students: WhatsApp, Telegram, WeChat, Viber, Line, KakaoTalk, and BBM. All are available in the market but some similar features. We will be discussing on the messaging apps in terms of their compatibility, registration process, chatting function, price of sending messages, find friends capability, and ease of changing to new devices. Most of the features comparisons are discussed for the top three mobile messaging apps used among IIUM students which are WhatsApp, Telegram, and WeChat.

A. Compatibility

Table 1 shows the comparison between the compatibility of the mobile messaging apps for different operating system, namely iOS, Android, Windows Phone, BlackBerry, Symbian, PC, and Web. WhatsApp is compatible with iOS, Android, Windows Phone, BlackBerry, PC, and Symbian but it does not compatible with web. On the other hand, Telegram is compatible with iOS, Android, Windows Phone, PC, and web but it does not support BlackBerry and Symbian. WeChat is quite similar to WhatsApp and it is also compatible with web. Meanwhile, Viber is compatible with all OS and PC. Line is only compatible with iOS, Android, Windows Phone, BlackBerry, and PC. KakaoTalk compatibility is similar to Line. Lastly, BBM is only compatible with iOS, Android, and BlackBerry.

B. Registration

WhatsApp registration needs country code and phone number in the device itself. The number needs to be entered and WhatsApp will do the verification and the user needs to enter their name. As for Telegram, users need to select their country and enter the phone number upon registration. After that, an activation code from Telegram will be sent through SMS. In order to verify the user, they need to key in the activation code received. After verification, the user can set up a public username [13].

Meanwhile, in WeChat, the user can sign up with WeChat ID (unique name that friends can search) and it can be changed only once [17]. The phone number will not be shown in WeChat. On the other hand, for Viber registration, the user needs to select their country and enter the phone number. The phone number acts as the ID. The registration process is similar to Telegram as Viber will send activation code through SMS. After verification, the user can enter their name.

Similarly for Line, the user needs to select their country and enter phone number. After that, a verification code that will automatically register the account will be sent through SMS same as Telegram and Viber. For KakaoTalk, the user only needs to enter phone number without registering or logging-in [2]. The verification code will be sent to the phone and it will automatically verify and provide a Talk ID that can be used for friends to add in KakaoTalk. In order to use BBM, the user needs a BBID (BlackBerry ID). After installing BBM on the device, the users can create a BBID using the smartphone and also through online on bbid.com. After creating BBID, the user needs to sign in to BBM using the created BBID [5].

Table 1: Comparison of compatibility [4], [14]

	Whats App	*Telegram*	*WeChat*	*Viber*	*Line*	*Kakao Talk*	*BBM*
iOS	•	•	•	•	•	•	•
Android	•	•	•	•	•	•	•
Windows Phone	•	•	•	•	•	•	
BlackBerry	•		•	•	•	•	•
Symbian	•		•	•			
PC	•	•		•	•	•	
Web		•	•				

C. Chat

The main feature for a mobile messaging app that one would expect is the ability to chat or have a conversation by sending unlimited number of messages to individuals and groups in a fast-pace and conversation-like style. Different mobile messaging apps in the market provide their own features that make them different from one another. In WhatsApp, the users can send text, pictures, files from Gallery, pictures directly from camera, videos, audio directly from voice recorder like walkie-talkie voice message. WhatsApp enables the user to create a chat as well as a group chat with maximum of 100 participants per group.

Other features included in WhatsApp chat sessions are attaching emoticons, sending current location and contact details. WhatsApp also shows the presence of the users in WhatsApp: online and *last seen* [10] feature. The *last seen* can be configured to be hidden in Privacy settings. Also, every line of messages sent has a tick that indicates different meaning. Figure 2 shows three different ticks in WhatsApp: single grey tick means that the message is successfully sent; double grey ticks mean that the message has successfully delivered to the recipient's phone, and the latest update version of WhatsApp, double blue tick means that the recipient has read the message.

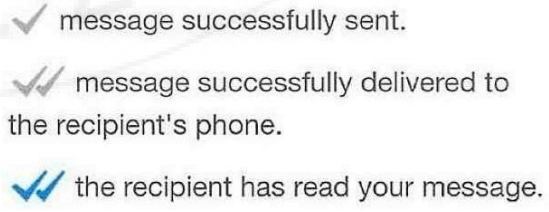

Figure 2: The different ticks meaning in WhatsApp

In Telegram, the user can create a chat as well as a group chat up to 200 participants per group. The chat overview is similar to WhatsApp. In addition to that, Telegram allows a

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secret chat as shown in Figure 3where the user can send end-to-end encrypted messages [3] that do not get stored on servers and the users are able to set a self-destruction time on each individual message for extra privacy where it does not supported by WhatsApp. The padlock symbol indicates the private chat. One tick in the message means that the message is delivered to the Telegram cloud and the recipient has been notified, while double checks mean that the message has been read by the recipients [13]. Telegram also allows the users to send photo, video, audio, location, and contact. The additional feature in Telegram for messaging is that it can send document such as doc, zip, and mp3 files while WhatsApp cannot.

On the other hand, WeChat has richer emoticons and stickers as compared to WhatsApp and Telegram. By default, it comes with a default set of animated stickers. The user can get more stickers by downloading them for free and some of them need to be paid. WeChat allows a chat and a group chat. It enables users to send images, videos, location, and name card. Other feature of WeChat is walkie-talkie feature that allows users to send quick voice messages to another user. Another distinct feature in the latest version of WeChat 5.0 is translation service that can translate the text messages from one language to another as shown in Figure 4. This unique feature is only available in WeChat and none of the other mobile messaging apps provide such in-app translation [16]. For translation, WeChat supports up to 20 international languages: English, Hindi, Arabic, Hebrew, Indonesian, Italian, Japanese, Korean, Malaysia, Polish, Russian, Spanish, Thai, Turkish, Vietnamese, French, Mandarin, Portuguese, Urdu, and German [16]. Moreover, WeChat provides a private group feature to set a password for groups where the participants must enter a four-digit code before starting a conversation in a group as shown in Figure 5.

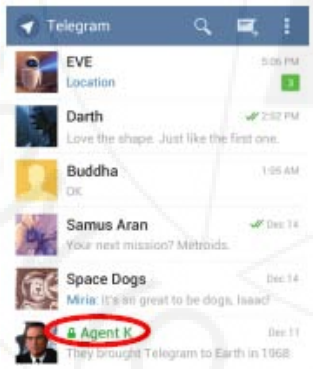

Figure 3: Telegram chat overview for secret chat

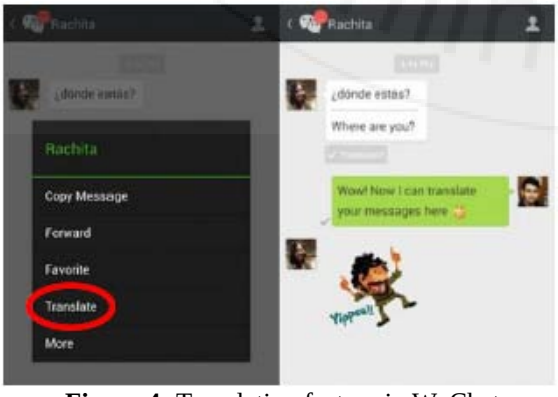

Figure 4: Translation feature in WeChat

Figure 5: Private group feature in WeChat

D. Price

WhatsApp is free to download and use for the first year. After one year trial, the users have to pay the subscription fees for $0.99 USD or RM 3.50 per year [19]. Figure 6 shows that the users may purchase the extension for 1 year (RM 3.50), 3 years (RM 8.75), and 5 years (RM 12.16), and the payment can be made through Google Wallet by using debit or credit card. On top of that, the users can pay for their friends in WhatsApp contact.

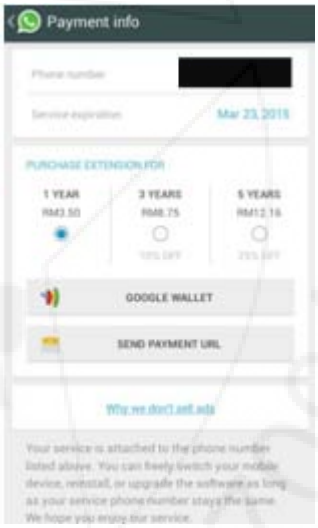

Figure 6: Payment for subscription fees in WhatsApp

On the other hand, Telegram is an open source app where it has no subscription fees unlike WhatsApp[15]. WeChat is similar to Telegram as it is also free. However, the payment is only applicable for those who want to buy paid stickers.

E. Add Friends

In WhatsApp, the friend's phone number must be in the user phone's contacts in order for them to initiate a chat. Both parties must get the WhatsApp installed beforehand. Otherwise, the other party may not find their friend in WhatsApp list even though the phone number is already in the phone's contacts. The users might invite their friends who do not have WhatsApp installed yet.

Telegram is similar to WhatsApp where the friend's phone number must be in the user phone's contacts in order for them to start a chat and it is required for both parties to install Telegram. The users might invite their friends who do not

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have Telegram from other apps like WhatsApp. On the other hand, WeChat provide few ways to add friends. The users might add friends through their phone numbers, find people nearby by *look around* feature, *shake* feature that enables the users to shake their phones and WeChat will provide a random list of people around them immediately. The users can also scan QR code of the friends if there are any, and also through WeChat ID.

F. Ease of Changing to New Devices

WhatsApp allows the users to change phone numbers on their accounts. Hence, it is easy to change to a new device since the users need to ensure that particular number of SIM card is on the phone that the users wish to register WhatsApp on since the verification during registration process will be done automatically and no username or password required. Meanwhile, Telegram requires the users to deactivate old account and create a new one for the new number if the users wish to change for a new device.However, in order to login to WeChat account, it requires the users to enter a password for the number of the device once the users have logged out.

3. Survey

An online survey was carried out to assess the IIUM students' preferences on mobile messaging apps including the features and security measures of those mobile messaging apps installed in their smartphones. The instrument was a 12 question mixed response survey created using Google Form. The survey was distributed through "IIUM Online", the Facebook group for IIUM students. The respondents for this survey were 52 students of IIUM: 67% of them are female while another 33% are male. The first question determined the type of operating system (OS) used for their smartphones and found out that Android is the highest with 81%, followed by iOS (13%), and Windows Phone (6%).

To know the most installed mobile messaging apps, the students were asked on which mobile messaging apps that they installed in their smartphones. The results are tabulated in Table 2. The most installed mobile messaging apps were WhatsApp (98%), followed by Telegram (46%), WeChat (35%), Viber (23%), Line (21%), Others like Tango and Badoo (8%), KakaoTalk (6%), and BBM (2%).

Table 2: Mobile messaging apps installed

Types of app	Installed (%)
WhatsApp	98
Telegram	46
WeChat	35
Viber	23
Line	21
Others	8
KakaoTalk	6
BBM	2

Students were then asked on why they installed those mobile messaging apps and found out that 90% said that it is free, 81% said that everyone is using it, 73% said that it is easy to use, 21% for attractive features and remaining 2% for Other such as to chat.

To find out the number of mobile messaging apps installed in their smartphones, students were asked on how many mobile messaging apps that they actively used. Most of them (46%) opted for one app. 40% opted for two apps, followed by 8% for three apps, and 6% for more than three apps. Students were also asked on how many number of messages they received via those apps every day and half of them (54%) said that they received more than 50 messages per day.

Due to the ambiguity of defining the features of the mobile messaging apps, students were asked on how many group they have in one mobile messaging app and the highest (38%) have 10 groups, and only one respondent (4%) has more than 40 groups. Students were asked on what group they used for. The results are presented in a bar chart in Figure 7 where 92% of them said to socialize, 71% for education, 56% for work, 15% for business, and 8% for other such as for trip group.

The pie chart in Figure 8 shows the frequency use of emoticons represented by "Always", "Often", "Sometimes", and "Never". Students were asked on how often they used emoticons in the apps. The majority of 40% of them used emoticons "Always", 37% used emoticons "Often", 21% used "Sometimes", and only one respondent (2%) "Never" used emoticons.

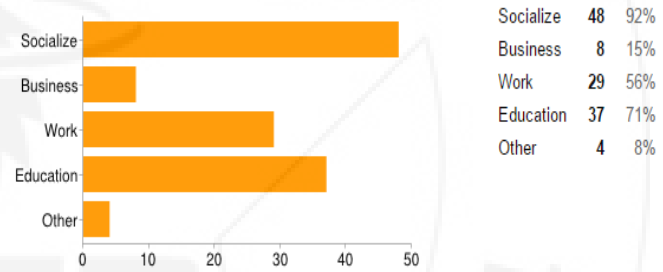

Figure 7: Categories of group

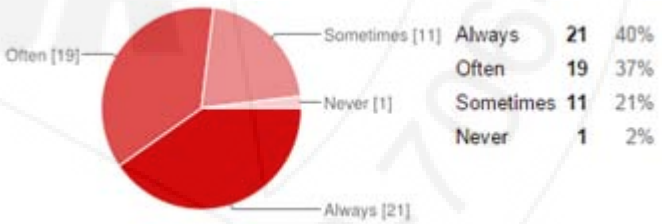

Figure 8: Frequency of emoticons usage

To find out the awareness of security among the students, they were asked whether they are aware that their messages are not well-secured and majority of them (69%) said "Yes" while another 31% of them said "No". They were also asked whether they have been spammed through those mobile messaging apps and majority of them (63%) said "No" and 37% said "Yes". Lastly, they were asked on how they knew about the mobile messaging apps and the answer included "Friends", "Advertisements", "Google Play", and "App Store". Most of them (85%) said they knew about it from "Friends", followed by 42% from "Google Play", 29% from "Advertisements", and 27% from "App Store".

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4. Discussion and Conclusion

Based on the survey from 52 students from IIUM, majority of the students use Android smart phones. This might be due to the reasons that the price is cheaper than other OS like iOS devices. Android devices are affordable for students to buy instead of iPhone that is a bit higher priced and up market. Moreover, Android devices might easily connect with one another through Bluetooth but with iPhone, they can only connect with iPhone users. The price of the smart phones need to be considered as the users need to think of what data plan package that they want to subscribe which also differ in price. By default, a student will always choose within their limited budget for the device and the mobile data plan that they can afford.

In terms of the type of mobile messaging apps that the students used, it shows that WhatsApp has the highest percentage among others as all of the students installed WhatsApp in their phones. This is consistent to the hypothesis we had. Some of the reasons are due to WhatsApp provides the simple features focusing on messaging although the users are only given one year of trial and they need to pay for the subscription fees after one year. Moreover, most of students said that they knew about their mobile messaging apps through friends rather than from advertisements, Google Play or App Store. WhatsApp has never seen in television advertisements but it is widely used around the world. As compared to the famous apps that are always in the television advertisements such as WeChat, Line, and KakaoTalk with famous artists, which are lesser used among students.

It seems like the users do not mind if they have to subscribe WhatsApp as most of the students said that they installed the apps because of it is free, everyone is using it, and it is easy to use. WhatsApp is well-known mobile messaging app that was introduced in 2009 while other apps were only started to emerge after that. Therefore, it eludes the trust for the students that WhatsApp is the most established app among others. Since everyone is using it, it made the students to feel like they must have one. All mobile messaging apps required the users to install them in order to initiate chat with one another. WhatsApp users can only chat with another user that have WhatsApp and vice versa. The simple features provided in WhatsApp might be the reason why the students said that they installed the apps because it is easy to use. There were a small percentage of the students said that they installed the apps due to its attractive features which means that simplicity is the key. Users do not prefer those apps with rich features and WhatsApp is the right one although it does not provide secret chat as in Telegram and cool stickers as in WeChat. Moreover, majority of the students used emoticons while messaging even though emoticons are not that cool as stickers but it simply shows one's emotion instead of texting.

About half of the students said that they have one mobile messaging app that is actively used. It can be concluded that WhatsApp is the most favourable mobile messaging app among IIUM students since all of the students in the survey installed WhatsApp in their phones. Most of the students have more than 5 groups in the app and the groups are used the most for socializing and educational purposes. It is a nature for the mobile users to use them to interact with their friends and family, and that is the main purpose of why mobile messaging apps are created. Besides, students need to discuss on their academic outside of the classrooms and sometimes, they might have no time to meet up for group discussion. Alternatively, mobile messaging apps help them to communicate without having to meet face-to-face. They can discuss on their class materials and what not in the app anytime and less energy is needed as they do not have to meet up somewhere and only discuss through the apps.

In terms of security concern, most of the students are aware that their messages are not well-secured. According to Thijs Alkemade, an open-source developer and student at Utrecht University in the Netherlands [20], he explored the flaw in the app's encryption that would make it possible to read plain text sent through WhatsApp. The vulnerability has been found in most Android devices and Nokia Series. However, there is a possibility that the vulnerability could be found in iOS devices as well [20]. WhatsApp messages are most likely have been compromised if the users are using unsecure wireless networks. Therefore, it is advisable to avoid sharing personal information like home address or unsafe photos through any mobile messaging app even though security is provided. All in all, users have to limit their personal information sharing while using any mobile messaging app in order to avoid from such security issues.

Another security concern regarding spam, majority of students said that they have not been spammed through the mobile messaging apps. This result shows that mobile messaging apps are different than SMS since SMS spam (also called as mobile spamming, text spam, and m-spam) [11] occur through SMS itself. The SMS spam occurs when unwanted advertisements are sent through text messaging. The spammers might easily get the users' phone numbers and start sending spam through SMS. Meanwhile in mobile messaging apps, the users can only start to chat if both parties get the app installed and have each other phone numbers in phone's contact list. Perhaps, it will be more difficult for the spammers to send the unwanted messages but it has high possibility to happen in WhatsApp since mostly everyone has WhatsApp installed in their phones.

In a nutshell, it is clearly proved that WhatsApp is the most favourable mobile messaging app among IIUM students due to its simple features that make it easy to use due to the fact that everyone is using it. The most important thing for the user is that the functionality to quickly send messages to their friends and family no matter where they are without bothering too much with cool features such as stickers that provided by the other apps. Telegram is also one of the mostly used by IIUM students since it is in top two installed mobile messaging app based the survey. The similar chat overview and features to WhatsApp might be the reasons as to why Telegram is in top two installed. Additional features of Telegram such as secret chat and it is completely free service would make Telegram more preferable in future. However, WeChat provide cute stickers and it is suitable for youngsters who love to send cool stickers even though some of them need to be purchased. As a student, mobile messaging apps are indeed needed in daily lives in order to communicate with each other for free or at lower cost than SMS, as long as they have an internet connection.

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There are some limitations for this study due to the small number of respondents who were only from one university. Therefore, to get more accurate results, the study should have involved more respondents from other universities in future. Besides that, the research instrument for this study is limited to survey. In further study, the study should have a triangulation for better findings which include survey, interview, and observation.

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