

Short Messaging Service (SMS) Adoption among People with Visual Impaired In Malaysia

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ABSTRACT

Nowadays, Short Messaging Service (SMS) adoption among communities is common and has been used extensively as one of the medium of communication and message delivery. This technology has been used not only among normal people but also it has been used by people who have visual impaired. This means the growth of technology not just limited to the normal users but it is also can give benefit to the people who have visual impaired by helping them learn to live more independently. The objectives of this research are to determine significant factors influencing the adoption of SMS among people with visual impaired and to investigate the SMS adoption as a main mechanism for sending messages among them. The study successfully revealed that the two dimensions, namely usefulness and ease of use do have positive relationship with user's behavioral intention of SMS. Usefulness appeared to be the strongest determinant for behavioral intention, followed by ease of use. However, there was lack of support for enjoyment and perceived fees on SMS adoption among people with visual impairment. The benefits such as ease of use should not be neglected in the development of new functions and enhancement of service features especially for visual impaired community. It also may give an important consideration when developing pricing policies and marketing strategies for more innovative and value-added SMS particularly for visual impaired community.

Keywords: *short messaging service, visual impairment, technology acceptance model, perceived fees*

Introduction

Nowadays, Short Messaging Service (SMS) adoption among communities is common and has been used extensively as one of the medium of communication and message delivery. As technology increases, people have experienced a lot of changes and improvement in their daily life (John Hulland, 1997). Technology changes every day and it is growing rapidly. It will facilitate our daily life easier and faster. This technology has been used not only among normal people but also using by people who have visual impaired. This means the growth of technology is not just limited to the normal user but it also can give benefits to the people who have visual impaired by helping them learn to live more independently. The blind or visually impaired can use text messaging service on their phones provided they have the correct software applications enabled on their phone. There are three common software applications namely Morse SMS, Mobile Speak and Nokia Braille Reader.

Short Messaging Services (SMS) are generally understood as texts read on small mobile phones screens typically capable of presenting 15 to 20 characters per line. The messages are written with numeric keypad on the phone, normally requiring more than one key press per character, with messages restricted to 160 characters in length (Svendsen et al., 2006). SMS, an almost instantaneous communication medium that connects people, is now a phenomenon that has grown and spread around the globe at an amazing speed compared to other types of mobile commerce services. SMS is extensively used not only for communication purposes but also as a major marketing effort due to its low cost. With the increased number of mobile subscribers in the world, SMS has gained its popularity and has become an integral part of people's lives (Lai, 2004) and has significant implications for communication and information transmission. SMS adoptior also has been used for irrigation scheduling. Nicholas et al. (2012) found that the model input data collectec from irrigators via SMS can be used as a very cheap bi-directional communication channel.

Theory Acceptance Model (TAM Model)

TAM was originally developed by Davis (1989) to explain the individual's adoption of traditional technology (e.g. spreadsheet, email and software development tools) in an organization setting (Davis, 1989) and has since become the most prominent model employed to explain the adoption and usage of technology by individuals. As mentioned earlier, TAM focuses on 2 theoretical constructs; *Perceived Usefulness* (PU) and *Perceived Ease Of Use* (PEOU). PU is the degree to which a person believes that using a particular system would enhance his or her performance. A system high in perceived usefulness is one, which a user believes in the existence of a positive performance relationship. PEOU in contrast refers to "the degree to which a person believes that using a particular system would be free of effort". These constructs are of significant importance as proposed by Davis (1989) since people tend to use or not use. Based on TAM (Davis, 1989) the research model can be further illustrated by the following figure.

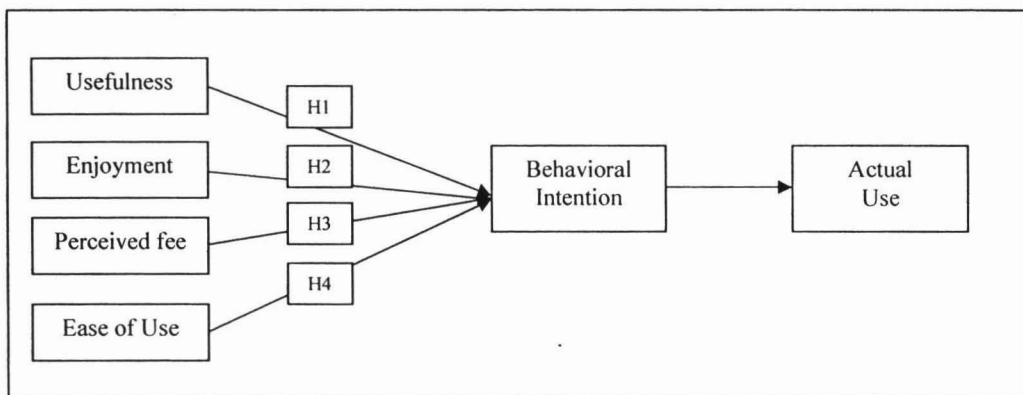


Figure 1: Research Model

This model has been tested for reliability and validity by Adam et al. (1992) who had replicated this model and confirmed the reliability as well as the validity of the constructs used for both usefulness and ease of use scales. The applicability of TAM has been applied in several countries like Tunisia (Nasri & Charfeddine, 2012), Taiwan (Shyu & Huang, 2011) and Peru (Jan & Contreras, 2011) and was used to explain several perspectives ranging from the adoption of clinical information system (Melas C.D et al., 2011), e-government learning (Shyu & Huang, 2011), internet banking (Nasri & Charfeddine, 2012) and as well as 3G adoption (Chong A.Y. et al, 2012)

Behavioral Intention

Behavioral Intention depicts the use of more SMS in the future and recommending other people to use it. Behavioral intention which is a component of theory of reasoned action developed by Martin Fishbein and Icek Ajzen (1980) refers to a function of both attitudes toward a behavior and subjective norms towards the behavior, which has been found to predict actual behavior. For instance, one's attitude about SMS combined with the subjective norms about SMS, each with their own weight, will lead to one's intention to use SMS (or not), which will then lead a person to the actual SMS usage. Nysveen et al. (2005) suggested there is a significant link between behavioral control and intention to use, especially when it comes to goal-directed services (text messaging and payment) rather than experiential services (contact and gaming). Thorbjorsen et al. (2007) reported a positive significant effect of behavioral control on people's intention to use MMS (multimedia messaging service). Hanho (2011) found that the interface is a critical factor in determining the behavioral intention of students to use an e-library system. However, Hannu et al. (2010) found that there is no direct relationship between social norms and behavioral intention in any of the models for users and non-users of smart phone applications.

Usefulness

As one important communication tool, SMS helps users to communicate with their friends or colleagues anytime and anywhere. They can feel the care from their friends or relatives and release work stress. In addition, multitasking features allow one user to send a short message to many other SMS users. Therefore, the mobility and ease of use that SMS provides may make users perceive it as being useful. Usefulness is defined as the total value a user perceives from using a new technology (Kim et al. 2005) i.e. the user believes that the device has some desirable functions that it can perform. According to Lu, Deng & Wang (2010), perceived usefulness refers to the degree to which the use of an information system produces desirable outcomes. Individuals evaluate the consequences of their behavior in terms of perceived usefulness and base their choice of behavior on the desirability of the usefulness.

Susanto and Goodwin (2010) in their study of factors influencing citizen adoption of SMS-based e-Government services defined perceived usefulness as the degree to which a citizen believes that using the SMS-based e-government service will help them to get what they want and make their life easier. Common factors which discourage citizens adoption of available SMS-based e-government services include perceived usefulness. To increase perceived usefulness of an SMS-based e-government service, government should make sure that the service meets citizens' needs by conducting a preliminary survey before designing the service. Gu (2009) investigated the factors determining behavioral intention for application of mobile banking in Woore Bank of South Korea. The results showed that usefulness, trust and ease of use have positive effect on behavioral intention of mobile banking application. Gu (2009) also found that usefulness have positive effects on customers' perceptions in mobile banking services (SMS). The usefulness construct has been used extensively in information systems and technology research, and has strong empirical support as an important predictor of technology adoption (Matheison, 1991). For this study, usefulness reflects the total value a user perceives from using SMS.

Enjoyment

Individuals, who experience immediate pleasure or joy from using the technology and perceive any activity using the technology to be personally enjoyable in its own right aside from the instrumental value of the technology, are more likely to adopt the technology and use it more extensively than others (Davis et al., 1989). Nysveen et al. (2005) concluded that, in all four cases, people's intention to use mobile services as well as their attitude toward the actual use, is affected significantly by the direct motivational influence of enjoyment. Hong et al. (2006) showed that perceived enjoyment is a significant predictor of the intended adoption of mobile data services in the areas of communication, information, and entertainment. Eric et al. (2012) found the positive influence between enjoyment and affective evaluation of the target services, i.e., the mobile videos. Conversely, Hannu (2010) found that there is no significant relationship between perceived enjoyment and intention to use of smart phones application.

Ease of Use

Even if potential users believe that SMS is useful, they may, at the same time believe that SMS is too hard to use and that the performance benefits of usage are outweighed by the effort of using it. In addition to usefulness and enjoyment, SMS is theorized to be influenced by perceived ease of use. This variable has been adopted from Davis (1989), which refers to the degree to which an individual believes that using a particular system would be free of physical and mental effort. Hanho (2011) found that system quality can positively influence the perceived ease of e-library system use. Study conducted by Chong et al. (2011), confirmed the direct and significant relationships between perceived ease of use and users' intentions to adopt a technology. However, Alain et al. (2012) found that perceived ease of use don't have a direct and significant influence with Chinese consumers' intention to adopt a technology.

Perceived Fee

Text messaging has shifted from being a "one-to-one" to a "one-to-many" communications tool. There are various technologies that offer this service, ranging from standalone SMS texting systems to component systems that integrate SMS functionality into existing systems and other applications (Traxler, 2005). Thus,

users can send more text messages at the same cost of a one-minute mobile phone call. Potential adopters of SMS are mobile service consumers who will consider prices and evaluate SMS usage based on its benefits and costs. Since the fees or charges structure of SMS is either of *pay-as-you-use* (prepaid) and subscription-based pricing (post-paid), cost is an important factor to the consumers. According to the Adaptation Level Theory, instead of having perfect information about prices, customers possess internal reference prices and make comparison with these prices (Grewal et al., 1998). In the case of SMS, one would probably compare with the prices of mobile phone calls and stationary internet usage. The result of this comparison forms one's perception of the fee. However, Chong et al. (2012) found that cost or perceived fee don't have direct significant relationship with Chinese consumers' intention to adopt 3G.

Hypotheses

On the basis of existing literature, we developed the hypotheses outlined here:

Hypothesis 1: There is a significance relationship between usefulness and behavioral intention of SMS

Hypothesis 2: There is a significance relationship between enjoyment and behavioral intention of SMS

Hypothesis 3: There is a significance relationship between perceived fee and behavioral intention of SMS

Hypothesis 4: There is a significance relationship between ease of use and behavioral intention of SMS

Research methodology

A convenience sampling method was employed for this study. The sample was confined to people with visual impaired in Malaysia who is using SMS. A key person was engaged to act as the distributing agent and to facilitate the respondent to read the questionnaire survey and tick the answer due to the fact that the respondents have visual impaired. Survey approach was chosen because it provides quick, inexpensive, efficient and accurate means of assessing information about the population. Other research designs were not adopted because, first, manipulation of variables was not required as such experiment method was not appropriate. Second, there were not many studies have been done related to the research area, thus, secondary data approach alone was not sufficient.

The questionnaire was divided into 2 sections; section A and B. Part A was designed to measure the SMS behavior. A 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) was used. For each statement, respondents were required to indicate their level of agreement to the statements. The statements measure constructs that are relevant in measuring SMS adoption. Amongst the construct were 'behavioral intention', 'perceived usefulness', 'perceived ease of use', 'perceived enjoyment' and 'perceived fees'. The input for the SMS behavior statements were derived from Brady et al., (2002); Lai, (2004) and Kim et al., (2005). Part B was designed to obtain the demographic information of the respondents. The variables measured using a close-ended multiple choice format

The survey data was analyzed using the latest Statistical Package for Social Sciences (SPSS) version 20.0. The analysis consisted of four major parts. Firstly, summarization of the general characteristics of all the SMS users in terms of their demographic information and SMS usage profile. Secondly, factor analysis technique was used to identify important dimensions of SMS behavior. The component items of each factors extracted will be tested for internal consistency reliability using Cronbach's coefficient alpha. Thirdly, Pearson correlation analysis was used to describe the strength and direction of the factors extracted and to test the hypotheses. Finally, regressions analysis was done to identify how well a set of independent variables from the factors extracted able to predict or explain SMS adoption. In order to provide an adequate level of confidence in the study, a sample size of 300 was targeted. However, only 128 questionnaires were returned which is equivalent to a response rate of 43%.

Findings and Discussion

A total of 128 responses were obtained. Out of the total responses received, nine were invalid or incomplete and thus were rejected. Therefore, only 119 responded questionnaires were used for the final analysis.

Summary Statistics of Survey Respondents

The demographic profile of the respondents is presented in Table 1. The number of male respondents was more than the female respondents. There was 61.3% males as compared to 38.7% females in this sample. The male respondents outnumbered female by 22.6%. Majority of the respondents which represented 42 percent were between 20 to 25 years old. This was followed by 15.1 percent who fell within the age below 20 years old. Other age group of more than 40 years old represented 12.6 percent of the respondents. In terms of race, majority of the respondents that is 81.5 percent were Malay. This was followed by Chinese (14.3 percent), and Indian (4.2 percent). With regards to type of visual impairment, blindness made up the majority representing 54.6 percent of the total respondent. The remainders were low vision amounting of 45.4 percent of the total respondent. Majority of the respondent were bachelor (77.3 percent). Only 22.7 percent of the total respondents were married. Table 1 also indicates that the highest numbers of respondents don't have any income or less than RM1000. This is due to the fact that majority of the respondents were students. This is followed by total income with more than RM3000 with a percentage of 18.5%. While the smallest portion of respondents with the total income from RM2001 to RM2500 with a percentage of 1.7%. In terms of educational background, majority of the respondents that is 52.1 percent had tertiary education. Only 47.9% had secondary education. Majority of the respondent were from urban area with the total of 87.4%. Only 12.6% of the total respondents were from rural area.

Table 1 Demographic Profile of Respondents

	Variable	Value Description	Frequency	Valid Percentage (%)
1	GENDER	Male	73	61.3
		Female	46	38.7
		Total	119	100.0
2	AGE (YEARS)	Below 20	18	15.1
		20-25	50	42.0
		26-30	11	9.2
		31-35	11	9.2
		36-40	14	11.8
		Above 40	15	12.6
		Total	119	100.0
3	RACE	Malay	97	81.5
		Chinese	17	14.3
		Indian	5	4.2
		Others	0	0
		Total	119	100.0
4	MARITAL STATUS	Married	27	22.7
		Bachelor	92	77.3
		Total	119	100.0
5	LEVEL OF EDUCATION	Secondary	57	47.9
		Tertiary	62	52.1
		Total	119	100.0
6	INCOME LEVEL	Below RM1000	82	68.9
		RM1001- RM1500	5	4.2
		RM1501 – RM2000	3	2.5
		RM2001- RM2500	2	1.7
		RM2501 – RM3000	5	4.2
		Above RM3000	22	18.5
		Total	119	100.0
7	LOCATION	Rural	54	45.4
		Urban	65	54.6
		Total	119	100.0
8	TYPE OF VISUAL IMPAIRMENT	Low vision	54	45.4
		Blindness	65	54.6
		Total	119	100.0

Factor Analysis

Factor analysis was conducted to identify the underlying constructs that were deemed important in determining the overall level of SMS usage amongst people with visual impaired. Principal component analysis was used as the method of extraction. The Kaiser rule for number of factors to extract was utilized. Factor components with Eigenvalue greater than one were retained and Varimax was selected as the rotation

method. The criteria was employed to avoid a situation of cross-loading, to determine and interpret whether the factors extracted were similar to those used by Igbaria et al. (1998) and Jusoh et al. (2008) in which the cut-off loading was 0.5 or greater on one factor and 0.35 or lower in the other factors. To determine sampling adequacy, the KMO and Bartlett's test was carried out. The results indicated that the KMO value of 0.832 indicates that the sample is great to be performed with factor analysis, as posited by Kaiser (1970). After performing several rounds of factor analysis, a total of seven items were deleted from the analysis. The items removed due to cross-loading and values below 0.5 were PA1, PA2, PA3, PA16, PA17, and PA24. Five components were extracted with Eigenvalue exceeding 1, which explain the total variance of 65.33. The breakdowns of its values are seen in the Table 2.

Table 2 Rotated Component Matrix

		Component				
		1	2	3	4	5
PA7	Using SMS enables me to accomplish task more quickly	0.808				
PA8	Using SMS enhances my task effectiveness	0.808				
PA9	SMS makes it easier to do my task	0.760				
PA10	SMS improves my task performance	0.725				
PA11	SMS allows me to save time and effort in performing my tasks	0.721				
PA12	SMS is useful in performing my task	0.721				
PA13	I have fun interacting with SMS		0.930			
PA14	Using SMS provides me with a lot of enjoyment		0.883			
PA15	I enjoy using SMS		0.723			
PA21	SMS can be sent instantly			0.646		
PA22	SMS takes a short time to respond			0.682		
PA23	It is easy to get SMS to do what I want it to do			0.806		
PA4	Compared to the effort that I need to put in, the use of SMS is beneficial to me				0.749	
PA5	Compared to the time that I need to spend, the use of SMS is worthwhile to me				0.668	
PA6	The use of SMS is very valuable				0.518	
PA18	The charges that I have to pay for the use of SMS is reasonable					0.850
PA19	I am pleased with the charges that I have to pay for the use of SMS					0.559
Number of Items		6	3	3	3	2
Eigenvalues		8.452	2.659	2.139	1.401	1.029
Percent of Variance Explained (65.33)		35.217	11.077	8.913	5.839	4.288
Cronbach's Alpha		0.915	0.942	0.873	0.790	0.675
Decision		Retain	Retain	Retain	Retain	Retain

Based on the value of Cronbach's Alpha calculated, all factors which are 1, 2, 3, 4 and 5 (at 0.915, 0.942, 0.873, 0.790 and 0.675 respectively) are deemed to be internally reliable and consistent, thus retained for further examination.

The five factors identified as follows:

- **Factor 1: Usefulness**

This factor appeared to represent the level of usefulness of using SMS. It accounts for 35.217% of the total variance and is defined by six variables.

- **Factor 2: Enjoyment**

This factor appeared to represent the enjoyment of using SMS. It accounts for 11.077% of the total variance and is defined by three variables.

- **Factor 3: Ease of Use**

This factor appeared to represent the easiness of using SMS by people with visual impairment. It accounts for 8.913% of the total variance and is defined by three variables.

- **Factor 4: Behavioral Intention**

This factor appeared to represent the intention to use SMS by people with visual impairment. It accounts for 5.839% of the total variance and is defined by three variables.

- **Factor 5: Perceived Fee**

This factor appeared to represent the charges that user has to pay for SMS usage. It accounts for 4.288% of the total variance and is defined by two variables.

Reliability Analysis

The results showed that the coefficient alpha values for all the measured variables were all above 0.5 as summarized in Table 3 below. The findings indicate that all the questionnaires scales score has adequate internal consistency reliability.

Table 3 Summary of Reliability Analysis

Factor	Cronbach's Alpha	Number of Items
1	0.915	6
2	0.942	3
3	0.873	3
4	0.790	3
5	0.675	2

Testing Hypotheses and Associations among IS Attributes

Correlation analysis was carried out to test the relationship between the identified variables. This section analyzes the relationship between the following variables:

1. The relationship between usefulness and behavioral intention.
2. The relationship between enjoyment and behavioral intention.
3. The relationship between ease of use and behavioral intention.
4. The relationship between perceived fee and behavioral intention.

These tests are performed using two methods – Pearson Correlation tests and regression analysis. Pearson correlation coefficients (r) can take on only values from -1 to +1. The in front of the values indicates whether there is positive correlation (as one variable increase, so does the other) or a negative correlation (as one variable increases, the other decrease). The sign of the absolute value (ignoring the sign) provides an indication of the strength of the relationship. A correlation of 0 indicates no relationship between the two variables. According to Cohen (1998), the strength of the relationship is low when Pearson Correlation coefficient (r) ranges from 0.1 to 0.29 or -0.1 to -0.29; medium when (r) ranges from 0.3 to 0.49 or -0.3 to -0.49 and high when (r) ranges from 0.5 to 1 or -0.5 to -1. Regression analysis was then conducted in order to assess the predictive power of the predictors (independent variables) in explaining the variance of dependent variable. The results of the Pearson Correlation analysis and Regression analysis are shown in the Table 4 and Table 5 respectively.

Table 4 Pearson Correlation Analysis

Variables	Behavioral Intention	Usefulness	Enjoyment	Perceived Fee	Ease of Use
Behavioral Intention	1.00				
Usefulness	0.509(**)	1.00			
Enjoyment	0.315(**)	0.387(**)	1.00		
Perceived Fee	0.116(**)	0.071(**)	0.102(**)	1.00	
Ease of Use	0.475(**)	0.497(**)	0.453(**)	0.173(**)	1.00

** Correlation is significant at the 0.01 level.

From the Table 4 above, there are statistical significant relationships among all the variables. The strongest relationship is between usefulness and behavioural intention ($r = 0.509$). The relationship with medium strength are between ease of use and usefulness ($r = 0.497$), ease of use and behavioural intention ($r = 0.475$), ease of use and enjoyment ($r = 0.453$), enjoyment and usefulness ($r = 0.387$), and enjoyment and behavioural intention ($r = 0.315$). Lastly, the relationship with the lowest strength are between ease of use and perceived fee ($r = 0.173$), perceived fee and behavioural intention ($r = 0.116$), perceived fee and enjoyment ($r = 0.102$), and perceived fee and usefulness ($r = 0.071$). It is also can be seen from the table that all the statistically significant relationships are positively related.

Table 5 Model Summary (Regression Analysis)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.573 ^a	.328	.305	.50889	.328	13.938	4	114	.000

a. Predictors: (Constant), Ease of Use, Perceived fee, Enjoyment, Usefulness

Table 6 Regression Analysis

Predictors (Independent Variables)	Standardized Coefficient Beta	Significant (p)
Usefulness	0.352	0.000
Enjoyment	0.052	0.553
Perceived Fee	0.038	0.625
Ease of Use	0.270	0.005

Dependent Variable: Behavioral Intention
Adjusted $R^2 = 0.305$

Table 7 Summary of statistics

Hypotheses	Coefficient (r)	Sig (p)	Result
H1: There is a significant relationship between usefulness and behavioural intention.	0.509	0.000	Accept
H2: There is a significant relationship between enjoyment and behavioural intention.	0.315	0.553	Reject
H3: There is a significant relationship between perceived fee and behavioural intention.	0.116	0.625	Reject
H4: There is a significant relationship between ease of use and behavioural intention.	0.475	0.005	Accept

Based on the Table 5 above, the value of $R = 0.573$ indicates that the strength of the relationship between the independent and dependent variables is quite high. The R^2 value of 0.328 suggests that 32.8% of the variance in user satisfaction is explained by the four variables i.e. ease of use, perceived fee, enjoyment, and

usefulness in this sample. This deduces that 67.2% of the variance in behavioural intention is explained by other variables not included in this study. Additionally, the value of adjusted R^2 at 0.305 indicates that 30.5% of behavioural intention in the population is explained by ease of use, perceived fee, enjoyment, and usefulness. Regression analysis was carried out in order to assess the predictive power of the predictors (or independent variables) i.e. ease of use, perceived fee, enjoyment, and usefulness in explaining the variance of dependent variable i.e. behavioural intention. The result of the analysis is as shown in Table 6. According to the Table 6 above, only usefulness and ease of use have significance level of 0.000 and 0.005 respectively which were less the selected significance level of 0.05. This indicated that there is a significant relationship between usefulness and behavioural intention and also there is a significance relationship between ease of use and behavioural intention.

The standardized coefficients value for usefulness ($\beta = 0.352$) is the highest among the predictors, which indicates that usefulness is the most important variable in the predicting behavioural intention to use SMS by people with visual impairment. This result further supported the reason of usefulness construct being used extensively in information systems and technology research, and has strong empirical support as an important predictor of technology adoption (Matheison, 1991, Lu, Deng & Wang, 2010, Susanto & Goodwin, 2010). This is followed by ease of use as the second important factor in the predicting behavioural intention to use SMS with $\beta = 0.475$ and significance level at 0.005. Ease of use is determined by users' perceptions as to whether using SMS is free from physical, mental and learning effort. The greater the perception of ease of use by the users about SMS, the greater the behavioral intention is, thus, supported H4 and reinforced earlier studies (Kim et al. 2005, Chong et al. 2011, Alain et al. 2012). Surprisingly, enjoyment and perceived fee are not statistically significant in explaining the variance in behavioural intention despite the correlation analysis results showed positive relationship between the two variables.

The analyses discussed above have successfully tested and supported the hypotheses except for H2 and H3. The first hypothesis, *H1: There is a significant relationship between usefulness and behavioural intention.*; is supported since its regression significance level is less than the selected significant level of 0.05 and the correlation analysis shows a strong positive relationship between the two variable ($r = 0.509$). However, there is lack of support for *H2: There is a significant relationship between enjoyment and behavioural intention*; even though the correlation analysis shows a medium positive relationship between the two variables ($r = 0.315$). Further analysis to test H2 using regression analysis indicated an insignificant relationship between enjoyment and behavioural intention (significance value is 0.553 which is more than $p = 0.05$). This is incongruent with the findings by Eric et al. (2012), Hong et al. (2006) and Davis et al. 1992, whereby, individuals, who experience immediate pleasure or joy from using any technology (including SMS) are more likely to adopt the technology and use it more extensively than others. The third hypothesis, *H3: There is a significant relationship between perceived fee and behavioural intention* is not supported since its regression significant level, ($p = 0.625$) which is more than the selected significant level of 0.05 and the correlation analysis shows a weak positive relationship between the two variable ($r = 0.116$). This finding suggested that monetary cost did not serve as a barrier to adoption. Further, it was coherent with Chong et al (2012) who found that cost or perceived fee don't have direct significant relationship with Chinese consumers' intention to adopt 3G. However, Kim et al. (2005) found that perceived fees was the top concern for M-internet adoption, as users are deterred more by the costs than they are attracted by benefits. For hypothesis #4, *H4: There is a significant relationship between ease of use and behavioural intention.*; is supported as the relationships between the variables were statistically significant (significance value is 0.005 which is less than $p = 0.05$). Furthermore, the Pearson Correlation showed a medium positive relationship between two variables ($r = 0.475$).

Conclusion

This study attempted to profile adoption of SMS usage in Malaysia among people with visual impairment. Demographically, the survey results revealed that, the respondents were dominated by male, tend to be single, age between 20 to 25 years old, majority were Malay, urban area and blindness. Majority was not earning any income due to most of them were students. The study successfully revealed that the two dimensions, namely usefulness and ease of use do have positive relationship with user's behavioral intention of SMS. Usefulness appeared to be the strongest determinant for behavioral intention, followed by ease of use. However, there was lack of support for enjoyment and perceived fees on SMS adoption among people with visual impairment.

Implications of the Study

This research has served to broaden our understanding of the factors influencing SMS adoption from the user's perspective of people with visual impairment. The benefits such as usefulness and ease of use would be the most important driver of SMS adoption and should not be neglected in the development of new functions and enhancement of service features especially for them. Rather than creating services based on expert's perception of usefulness and demand, service providers should conduct regular market research to discover consumer needs and wants and transform the findings into services useful to this type of consumers. Understanding the current SMS users' behavior towards the current SMS service is important to the telecommunication service providers given the similarity between normal people and people with visual impairment users.

Limitations and Recommendation

There are limitations in this study which may restrict the generalizability of the findings, and these could be addressed in future studies. First, the study was confined to SMS users among people with visual impaired residing in Pahang, Kuala Lumpur and Selangor. SMS users from other parts of the country were excluded from the research due to time and cost constraints. Consequently, the study is subject to the limitations and possible biases that exist when only a few geographic areas, which may not be representative of the total SMS users. Moreover, most of the respondents in this study are students; as such they are not representative of Malaysian society. Future research on less educated users will offer further insights into the adoption of SMS among people with visual impaired. Despite these limitations, this research paper serves as an important study into the potential of SMS usage in Malaysia particularly for people with visual impairment. It is hoped that businesses keen on entering the wireless marketplace will find this preliminary research useful in establishing business models and understanding the nature of the industry in Malaysia especially to facilitate people with visual impaired in using current technology. Further research can be conducted over a more heterogeneous sample of Malaysians with a better formulated and in depth survey so as to yield more representative results.

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