



FACTORS MOTIVATING THE ACCEPTANCE OF NEW INFORMATION TECHNOLOGIES: A STUDY FROM TECHNOLOGY ACCEPTANCE AND INFORMATION SEEKING BEHAVIOR APPROACH

Noor Azizah Ahmad
Che Su Mustaffa
Awanis Ku Ishak
Universiti Utara Malaysia

Abstract

Because of the increasing significance of social communication technologies within an organization, they have become a new form of information processing. By applying technology acceptance model and information seeking behaviour approach, this study investigated how respondents accept new communication technologies and influence their information seeking behaviour. This study involved 220 participants of Community Information Centre (MID) and Community Broadband Centre (PJK). Quantitative design was employed and data was collected through questionnaire survey. The data was analyzed statistically using Pearson Product-Moment Correlation Coefficient (r), One-way ANOVA and t-Test. The findings indicated that there was a significant relationship between technology acceptance and information seeking behaviour. The analysis on the difference showed that only education appeared to be the factor for the different results among the respondents concerning technology acceptance and information seeking behaviour. In summary we found that the acceptance of new communication technologies influences the seeking behaviour of respondents. Suggestions for further research are also presented in this study.

Keywords: Technology acceptance, Information seeking behaviour, Internet

Introduction

There is a wealth of research on the development and disseminations of information communication technologies. There are not many studies that focus specifically on the information seeking behaviour conducted in Malaysia. Studies in the context of information communication technology mostly concentrated on demographic factors such as districts or states, educational levels and social structures in the society (Narimah, 2002; Noor Sharifah, 2004). Therefore, the main concern of this study was to determine if there is a relationship or differences between technology acceptance and seeking behaviour approach among internet users in relation to demographic factors.

Information communication technology has become a tool in enhancing human knowledge. Accordingly, Government of Malaysia has taken the initiatives to provide and increase its population literacy and capabilities on information communication technologies. Government has introduced countless measure to increase information communication such as the establishment of the National Information Technology Council (NITC) and the Malaysian Institute of Microelectronic Systems (MIMOS) to help Government especially in term of developing and implementing information communication technology in Malaysia. MIMOS for instant has collaborate with Ministry of Rural and Regional Development to introduced Community Information Centre (MID) in the rural areas in the hope of reducing digital divide between rural and urban areas. On the other hand NITC has enlisted the help of private sector such as Telecom, Maxis, CELCOM to established Broadband Community Centre (PJK). Recognizing the important of increasing computer literacy, Government also has taken the initiative to provide computers for high school students especially in the rural areas.

The degree of which ICT acceptance and usage in the developed states in Malaysia such as the Federal Territory of Kuala Lumpur, Selangor, Johor and Penang is higher compared to the less developed states like Kedah, Kelantan and Terengganu. For example, in 2000, there was a huge difference regarding the accessibility to the internet between primary schools and secondary schools in Malaysia. 100 percent of the schools in the Klang Valley, Selangor had access to internet connection, whereas only a small number of schools in rural areas were provided with such facility. In addition to that, outside of Klang Valley, it was estimated that there were 1000 schools (approximately 12 percent) that did not have any telephone line (Belawati, 2002).

Demographic variables such as an individual's income and education can give rise to an array of questions concerning the internet. These variables are important because comparatively they can produce different implications on the society. This in turn will result in a digital gap between those who have access to the internet and those who do not. For instance, according to Harmon (1997), there are about 70% of the schools in the United States of America that have at least one computer that can be connected to the internet and less than 15% of the classes that have access to the internet. It is not surprising if the access to the internet is not distributed randomly as this is always related to income and educational level (Coley, Cradler & Engel, 1997). Even though there are studies that reveal that gender difference in using the internet lessens from time to time, there are still perceptions nevertheless towards the existence of racial gap that are thought hardly lessens (Abrahms, 1997).

According to Selwyn (2003), there are four reasons why individuals do not want to use technology: (1) financial constraints and cognitive inability, (2) technophobia, (3) having the mindset towards rejecting technology, and (4) the level of technology absorption. Economic factors were consensually perceived by social scientists as the main reason for influencing an individual to use or not to use technologies such as computers and the internet (Haywood, 1998). The existence or non-existence of financial constraints are claimed by Murdoch, Hartmann and Gray (1996) as the factors that determine whether one will use the technology, the way he uses it, and also the pattern of using it. Because it involves a high cost for technological devices, the possession of a technology is often regarded as an uneconomical lifestyle (Kling, 1999) for most people who cannot afford it and for those who do not need it. For such groups of people, hidden costs concerning possessing a computer like the costs for device installation, software and computer upgrading can cause the overall cost for owning a computer very high. For individuals who can afford it, the price of a computer is considered not too high compared to the price of a hi-fi or home theatre set (Kling, 1999). Therefore, the level of income and socio-economy is important to be considered before deciding to own a technology especially for those with low income. Cognitive abilities such as knowledge of technology, attitude towards it, experiences in using it and the skills of using it can also determine the use of technology (Loyd, Loyd & Gressard, 1984). The experience in handling computer can also determine one's perception towards computers. Good early experience in dealing with computers can result in positive feelings towards such technology (Todman & Monaghan, 1994). This is the starting line that makes psychologists to conclude that cognitive factors can influence one to use or not to use a technology.

Technophobia is said to be the second important reason for technology acceptance or rejection. Technophobia to computers is also known as 'computer phobia' or 'fear towards computers' (Brosnan & Davidson, 1994). The syndromes of computer phobia can be detected when one refuses to use a computer and other information technology and communication devices. Psychologists have the view that technophobia phenomenon symbolizes the release of an individual's worries and fears when thinking about using a technology. In other words, technophobia affects one's mind into thinking that technology is not for him (Brosnan & Davidson, 1994; Haywood, 1998).



Technophobia also causes an individual to hide himself and be alone particularly among adults and the elderly because they feel embarrassed not being able to handle a technology.

Research Method

The objectives of the study were to investigate how respondents accepted new communication technology and determined how it influenced their seeking behaviour. Technology in this study refers to the use of the internet among the respondents. Technology acceptance is a process or an activity done by the respondents whether with the intention of using the internet, perception towards the usefulness of the internet, perception towards facilitating work, perception towards internal control, perception towards external control, perception towards fear of computers, perception towards enjoyment, or perception towards the cost and access to the internet. Whereas, information seeking behaviour refers to activities conducted by respondents while using the internet such as gathering information for research, internet banking, participating in chat room, downloading education and leisure information and accessing government information.

The sample of the study was drawn from the participants of Community Information Centre (MID) and Community Broadband Centre (PJK) in the State of Kedah and Perlis, Malaysia. The study used a questionnaire-based survey design for data collection and a total of 202 respondents participate in this study. Responses to the questions were in close-ended forms for ease of analysis. The responses were presented in a five point Semantic Differential Scale format for uniformity. The questionnaire consisted of three sections. Section A focused on demographic information of the respondents including respondent's personal data, computer possession, computer usage, and internet subscription. Section B sought data on information seeking behaviour; which was measured by instrument developed by D'Ambra dan Wilson (2004) consists of 30 items. Section C covered aspects on technology acceptance which was measured by Moore and Benbasat (1991) with 34 items. These instruments had been adopted by many studies and already established their reliability and validity. Nonetheless, since we translated it to Malay language, we ran Cronbach's Alpha. Results of Cronbach's Alpha for information seeking behaviour and technology acceptance showed values of $\alpha=.94$ and $\alpha=.93$.

Findings and Discussion

A total of 202 respondents participated in this study. Table 1 summarized respondents' profile in term of sex, level of education and computer ownership. Majority of respondents were female (64.9%), aged below 20 years old (78.7) and still studying at secondary level school (87.1). Most of them owned computer (64.9%) and 56.4% of the total subscribed to the internet services. The low number of internet subscription actually did not prevent them from accessing the internet because as a member of MID and PJK, they were able to use free internet service.

Table 1: A Profile of Respondents

	Frequency	Percentage
Sex		
Male	71	35.1
Female	131	64.9
Age		
Under 20 years	159	78.7
20 – 24 years	20	9.9
25 – 29 years	13	6.4
30 – 39 years	4	2.0
40 and above	6	3.0
Education level		
Primary school	3	1.5
Secondary school	176	87.1
Vocational/technical	4	2.0
Diploma	12	5.9
Bachelor Degree	7	3.5
Computer Ownership		
Yes	131	64.9
No	71	35.1
Computer Usage		
Yes	192	95.0
No	10	5.0
Internet Subscription		
Yes	114	56.4
No	88	43.6

Table 2 showed the mean and standard deviation on items related to information seeking behaviour. Respondents revealed the highest score of mean for activities pertaining to searching for information using search engine (3.24), playing video games (3.22), and using instant messaging (3.28). Whereas, items that respondents rarely performed while using the internet includes getting information about travelling (1.39), advertise goods and services (1.45), and download music and videos (1.49).



Table 2: Means and standard deviation for information seeking behaviour

Items	Mean	Std. Deviation
1. Searched for information using a search engine (such as Google, Lycos, MSN)	3.24	.995
2. Complete long distance academic or professional courses	1.72	.993
3. Read technical articles	2.67	1.06
4. Do research	2.25	.992
5. Participate in discussions groups	2.31	.990
6. Access library services	2.27	1.12
7. Downloading a teaching and learning	3.07	.840
8. Correspond with professional or business colleagues via email	2.21	.813
9. Purchase goods and services	1.67	.820
10. Advertisement goods and services	1.45	.946
11. Develop your own web page	1.84	.888
12. Booking flights	1.92	1.10
13. Access and get information about travel	1.39	.893
14. Compare information and prices using website	1.74	.745
15. Access government information	1.87	.819
16. Using the services of government. Example of filling tax form online	1.96	.812
17. Pay bills	1.70	.992
18. Bank online	1.54	1.10
19. Download music, DVD's	1.49	.973
20. Listen to online radio	2.69	.866
21. Watching online television	2.34	.830
22. Use email	2.24	.845
23. Playing video games	3.22	.767
24. Participate in chat room	2.44	1.01
25. Join a newsgroup (Ex: Facebook, Friendster, Twitter)	2.89	.818
26. Use instant messaging	3.28	1.12
27. Visit chat services	2.21	.850
28. Connect with friends over the phone	2.62	.992
29. Access health information	2.26	.899
30. Get information about health	2.03	.921

Table 3 revealed means and standard deviation for technology acceptance. Findings indicated the highest mean score for items such as *I will use the internet if it is easy to use* (3.92), *I find the internet to be easy to use* (3.89), and *I find it is easy to get the internet to do what I want it to do* (3.84). Items that show the lowest score includes *computers make me feel uncomfortable* (2.43), *I get a sinking feeling when I think of trying to use computer* (2.49), and *working with computer makes me nervous* (2.50).

Table 3: Means and standard deviation for technology acceptance

Items	Mean	Std. Deviation
1. Given that I had access to the internet, I predict that I would use it	3.64	.823
2. Using the internet improves my performance in my job	3.71	1.11
3. Using the internet in my job increases my productivity	3.68	.833
4. Using the internet enhances my effectiveness in my job	3.73	.919
5. My interaction with the internet is clear and understandable	3.76	1.07
6. Interacting with the internet does not require a lot of my mental effort	3.51	.890
7. I find the internet to be easy to use	3.89	.848
8. I find it easy to get the internet to so what I want it to do	3.84	.919
9. I could complete the job using a internet if there was no one around to tell me what to do as I go	3.39	1.12
10. I could complete the job using a internet if i had only the software manuals for reference	3.47	.922
11. I could complete the job using a internet if I had someone else using it before trying it myself	3.34	.902
12. I could complete the job using a internet if someone else had helped me get started	3.60	.932
13. I could complete the job using a internet if I had a lot of time to complete the job for which the software was provided	3.53	.882



14. I could complete the job using a internet if I had just the built in help facility for assistance	3.52	.892
15. I could complete the job using a internet if someone showed me how to do it first	3.62	.900
16. I could complete the job using a internet if I had similar packages before this one to do the same job	3.40	.992
17. I have control using the internet	3.44	.995
18. I have the resources necessary to use the internet	3.41	.902
19. I have knowledge necessary to use the internet	3.44	.930
20. Given the resources, opportunities and knowledge it takes to use the internet, it would be easy for me to use the internet	3.71	.970
21. Computers do not scare me at all	3.52	.762
22. Working with a computer makes me nervous	2.50	.992
23. I do not feel threatened when other talk about computers	3.38	.800
24. It wouldn't bother me to take computer courses	3.57	1.14
25. Computers make me feel uncomfortable	2.43	1.11
26. I feel at ease in a computer class	3.59	1.05
27. I get a sinking feeling when I think of trying to use a computer	2.49	1.11
28. Computer make me feel easy	3.64	1.12
29. I find using the internet to be enjoyable	3.80	1.01
30. The actual process of using the internet is pleasant	3.81	1.03
31. I will use the internet if Internet service is more reliable (always used, high speed Internet access)	3.76	.912
32. I will use the Internet if the is cheaper	3.76	.913
33. I will use the internet if i took only a short time to find and download information from the internet	3.70	.902
34. I will use the internet if it easy to use	3.92	1.10

Table 4 indicated the results of T-test to determine whether there is a difference in the technology acceptance and information seeking behaviour in regards to gender. Findings demonstrate there was no significant difference between male and female respondents in terms of the information seeking behaviour ($t=.06, p>.05$). With respect to the technology acceptance, the analysis revealed the same result as there was no significant difference between male and female respondents ($t=.43, p<.05$).

Table 4: Different in the information seeking behaviour and technology acceptance based on gender

Variable	Sex	n	Mean	s.d	t	sig.
Information Seeking Behaviour	M	71	3.46	.675	-1.68 .517	.06
	F	131	3.57			
Technology Acceptance	M	71	2.22	.691	.065 .779	.43
	F	131	2.22			

T-test showed no significant difference of information seeking behavior between respondents who owned computers and those who did not own any ($t=.60, p>.05$). The results also indicated that again there was no significant difference with respect to technology acceptance among respondents ($t=.20, p>.05$). Table 5 summarized these results.

Table 5: Different in the information seeking behaviour and technology acceptance based on computer ownership

Variable	Computern	n	Mean	s.d	t	sig.
Information Seeking Behaviour	Yes	131	2.26	.769	1.04 .705	.60
	No	71	2.14			
Technology Acceptance	Yes	131	3.58	.553	2.13 .613	.20
	No	71	3.40			

Table 6 showed the results of t-test conducted in order to identify if there was any significant difference in terms of information seeking behaviour and technology acceptance based on computer usage among respondents. The analysis appeared to indicate that there was a significant difference in information seeking behaviour based on the use of computer among respondents ($t=.01, p<.05$). Mean value showed respondents who used internet more often were exposed to internet seeking behaviour compared to those who did not use computer. Whereas, findings on technology acceptance showed no significant different based on computer usage ($t=.01, p<.05$).

Table 6: Different in the information seeking behaviour and technology acceptance based on computer usage

Variable	Computern	n	Mean	s.d	t	sig.
Information Seeking Behaviour	Yes	192	2.24	.757	1.94 .278	.01
	No	10	1.77			



Technology Acceptance	Yes	192	3.51	.579	-.743	.68
	No	10	3.62	.616		

Table 7 presented result from ANOVA test for information seeking behaviour according to age. Result showed there was significant difference in information seeking behaviour based on age ($F=.00, p<.05$). It related the idea that age would influence seeking information behaviour on certain issues.

Table 7: ANOVA for Information Seeking Behaviour by Age

		Sum of Squares	df	Mean Square	F	Sig.
Information Seeking Behaviour	Between Groups	14.25	4	3.56	7.15	.000
	Within Groups	98.16	197	.498		
	Total	112.42	201			

Post Hoc Scheffe analysis revealed there were differences in information seeking behaviour based on age (Table 8). Respondents age below 20 years old showed different in information seeking behaviour compare to those in the age of 20-24 years old and also those in 25-29 years old.

Table 8: Post Hoc Scheffe for information seeking behaviour

Variable	(I) Age	(J) Age	Mean Difference(I-J)
Information seeking Behaviour	20 years and below	20-24 years	-.65003*
		25-29 years	-.72695*

Table 9 presented result from ANOVA test for information seeking behaviour according to age. Result showed there was no significant difference in technology acceptance based on age ($F=.05, p<.05$).

Table 9: ANOVA for Technology Acceptance by Age

		Sum of Squares	df	Mean Square	F	Sig.
Technology Acceptance	Between Groups	3.17	4	.795	2.42	.05
	Within Groups	64.55	197	.328		
	Total	67.72	201			

Table 10 presented result from ANOVA test for information seeking behaviour according to education level. Result showed there was significant difference in technology acceptance based on education level ($F=.00, p<.05$).

Table 10: ANOVA for Information Seeking Behaviour by Education Level

		Sum of Squares	df	Mean Square	F	Sig.
Information seeking Behaviour	Between Groups	31.61	4	7.904	19.268	.00
	Within Groups	80.80	197	.410		
	Total	112.41	201			

Post Hoc Scheffe analysis revealed there were differences in information seeking behaviour based on level of education (Table 11). Result showed differences in information seeking behaviour among those who had secondary level education compare to those who have diploma and first degree.

Table 11: Post Hoc Scheffe for information seeking behaviour

Variable	(I) Education	(J) Education	Mean Difference(I-J)
Information seeking Behaviour	Secondary School	Diploma	-1.27016*
		Degree	-1.47753*

Table 12 presented result from ANOVA test for technology acceptance based on education level. Result showed there was no significant difference in technology acceptance based on education level ($F=.06, p>.05$).

Table 12: ANOVA for Technology Acceptance by Education Level

		Sum of Squares	df	Mean Square	F	Sig.
Technology Acceptance	Between Groups	3.01	4	.754	2.29	.06
	Within Groups	64.71	197	.329		
	Total	67.72	201			

Table 13 showed result of correlation Pearson analysis between technology acceptance and information seeking behaviour in order to determine whether there was a relationship between these two variables. There was a significant relationship, positive but slightly weak between technology acceptance and information seeking behaviour ($r=.30^{**}, p>.01$).

Table 13: Correlation between technology acceptance and information seeking behaviour



Technology Acceptance	Information Seeking Behavior
r	.30**
n	202
p	0.01

**r significant at the level 0.01 (2 tailed)

Stepwise Regression analysis was conducted to determine which technological acceptance aspect significantly contributed to the information seeking behaviour. Result showed technology acceptance contributed to information seeking behaviour among respondents in several dimension including exploration, government services, financial and social activities.

Table 14: Stepwise Regression Analysis

Model	R	Adjusted R2	B	Beta	t	Sig.
Constant	.393	.124				
Explore			.011	.024	.289	.03
Education				.031	.045	.442
Business			-.055	-.079	-.671	.61
Government services				-.103	-.167	-1.580
Financial			.110	.170	1.542	.00
Entertainment				-.006	-.010	-.097
Social				.200	.355	3.136

Conclusion and Future Works

With regard to technology acceptance, the findings revealed that the respondents would use the internet if it was easy to use, to use it if was clear and easily understood, using the internet required lower cost, and had the opportunity and knowledge on using the internet. The internet was also useful because it did not demand a lot of mental efforts, can help in completing a task, and if they have experience in handling computer. However, respondents also understood that using a computer could cause anxiety, they felt afraid thinking about using a computer, and using a computer could make one nervous. Such findings seem to be in line with Social Influence Theory that hypothesized a technology will only be used by an individual when they saw other people use it. The findings also explained the characteristics that a technology should have which were small size, affordability, and easy use. These characteristics appeared to meet the hypothesis proposed by the theory of Technology Acceptance.

In term of information seeking behaviour, results suggested respondents used the Internet to access electronic mails, gathered information on various search engines, and joint internet chat rooms. This findings indicated internet was used extensively to gather information and for social activities. Research conducted by Carey and Moss (1985) and Kraut et al. (1999) also achieved the same results. However, finding indicated respondents seldom used Internet to buy stuffs and services, advertise services, or develop their own website. This was not surprising since majority of respondents were below the age 20 years old. For further research, it is recommended that detailed investigations on the effects of using the internet and the things involved in getting information are conducted. This is because the present study does not cover the two elements comprehensively. With regard to demography, it is proposed that future research focus on income as an important element that determines the acceptance and use of technology.

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