Research Journal of Applied Sciences 8 (3): 221-224, 2013
ISSN: 1815-932X

Behavioral Intention Towards ICT Usage among Fishermen in Malaysia

Siti Aisyah Bt Ramli, Siti Zobidah Omar, Jusang Bolong,
Jeffrey Lawrance D'Silva and Hayrol Azril Mohamed Shaffril
Laboratory of Cyber Generation, Institute for Social Science Studies,
Universiti Putra Malaysia, Bangi, Selangor, Malaysia

Abstract: The main aim of this study is to discover the behavioral intentions of Malaysian fishermen towards ICT usage in their fishing operations. This is a quantitative study in which data was collected from a total of 400 respondents from four fisheries districts in Malaysia. The results demonstrate that fishermen in Malaysia have a positive behavioral intention towards ICT usage based on the moderate mean score recorded by all seven statements used. The suggestions made are expected to provide ideas to stakeholders regarding planning effective strategies by which to embolden more fishermen to use ICT in their fishing routines.

Key words: Fishermen, ICT usage, behavioral intention, fisheries development, Malaysia

INTRODUCTION

The fisheries industry is one of the major components of agriculture. Its role in enhancing the socio-economics of local communities, particularly those in rural areas is unarguable. Based on a recent calculation by the Department of Fisheries Malaysia there are >126,000 registered fishermen in Malaysia and the majority are located in states such as Perak, Terengganu, Sabah and Selangor. The number of registered fishermen is not surprising as a number of initiatives have been offered by the government to attract more people to become part of the fishing community. Among the initiatives is the introduction of a monthly allowance worth RM200 (equivalent to USD66) for every registered fisherman and a subsidy which allows fishermen to buy fuel/diesel at 65 cents cheaper than the market price.

In acknowledging the importance of the fisheries industries and assisting the industry to meet the demands for local marine supplies, the Malaysian government has introduced a number of modern technologies such as Geographical Positioning Systems (GPS), echo sounders, sonar, mobile phones, wireless sets and radar. Most of the fishermen in Malaysia possess these modern tools, particularly mobile phones and GPS (Omar *et al*., 2011). Such tools are expected to uplift fishermen in a socio-economic sense as they have a huge ability to increase fishermen's productivity, enhance their safety and security save them money, energy and operation time, expand their marketing sources and ease their communication processes.

As interest in the role of ICT in the fishing industry, particularly among researchers and academics is increasing, an abundance of literature germane to ICT and the fishing industry has arisen. Nonetheless, the focus of this research has been more on the technical side and little effort has been put into social aspects, though a number of technology behavioral models have been developed. Established models such as diffusion of innovations (Rogers, 1983), The Technology Acceptance Model (TAM) (Davis *et al*., 1989), Extended Technology Acceptance Model (ETAM) (Hu *et al*., 2003) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al*., 2003) have confirmed the importance of behavioral factors on technology usage; one of the common factors discussed is behavioral intention.

Behavioral intention is an indication of an individual's readiness to enact a given behavior (Fishbein and Ajzen, 1975) or according to Kuo and Yen (2009) is an individual's subjective awareness of performing a specified behavior and is the major determinant of actual usage behavior. According to Jackson *et al*. (1997), it is very clear that many factors play an important role in explaining behavioral intention to use an information system. According to Uesugi (2008), a community with positive behavioral intentions towards ICT usage will welcome any ICT tools and programs that will help them to do their jobs. Nevertheless, Uesugi (2008) identified that a deficiency of ICT knowledge is the main reason why communities do not demonstrate a positive behavioral intention with respect to ICT usage. Zhang and Aikman (2007) clarified that attitude can be a

Corresponding Author: Siti Aisyah Bt Ramli, Laboratory of Cyber Generation, Institute for Social Science Studies, Universiti Putra Malaysia, Bangi, Selangor, Malaysia

mediator with respect to behavioral intention. In this case, concerned parties should consider the idea that a positive attitude towards a certain ICT does not necessarily lead potential users to adopt it. Instead, actions should be taken to identify the antecedents of attitudes towards behavioral intention with respect to ICT.

MATERIALS AND METHODS

This study is a quantitative study in which the main attempt is to measure behavioral intentions towards ICT usage among fishermen in Malaysia. The respondents for this study were all registered fishermen and assistance from agencies officers was gained to identify those who would be suitable to participate. A total of 400 respondents from four fisheries districts (Mersing, Langkawi, Kuala Besut and Larut-Matang) in Malaysia were chosen for the study.

The study has its own limitation in the sense that ICT usage within the scope of this study refers to GPS, sonar, echo sounders, wireless sets and mobile phones and the results might have differed if other tools had been included. Moreover, the respondents were chosen from four selected fisheries districts and the data might have reflected different results if fishermen from other fisheries districts had been included. To run suitable and relevant analyses, SPSS was employed.

RESULTS AND DISCUSSION

Table 1 demonstrates the socio-demographic data of the respondents. Most of the respondents were Malay. Most of the agriculture sectors in Malaysia are suffering from an aging farming community (Norsida, 2007, 2008) and the fisheries sector is no exception: the mean score recorded for respondent age was 46.9 and the majority were in the age group 41-50 (29.5%). A total of 57.3% of the respondents possess a primary level of education and thus there is a call for university graduates, particularly those with aquaculture and business qualifications to become involved in the industry. Though the mean score for respondent income was RM825.92. The poverty level set by the EPU is RM720 (equivalent to USD240) and exceeded the poverty level set by the Malaysian Economic Planning Unit (EPU), it should be highlighted that 35.5% of them remained under the poverty level as they were identified to earn less than RM500 per month. In line with the mean score recorded for experience as a fisherman which was 24.4 years, the fishermen interviewed can be considered experienced. Slightly more than two-fifths of the respondents (42.5%) spent between

Table 1: Socio-demographic data of the respondents

Levels	Frequency	Percentage	Mean	SD
Race				
Malay	362	90.5		
Chinese	38	9.5		
Age (years)			46.90	11.97
<30	43	10.8		
31-40	78	19.5		
41-50	118	29.5		
51-60	103	25.7		
>61	58	14.5		
Level of education				
Never been to school	53	13.3		
Primary school	229	57.3		
PMR/SRP/LCE[1]	71	17.8		
SPM/SPMV/MCE[2]	43	10.6		
Skills certificate/STPM	4	1.0		
Income per month (Ringgit Malaysia)			825.92	809.59
<500	142	35.5		
501-1000	196	49.0		
>1001	62	15.5		
Experience as fisherman (years)			24.40	13.55
<10	86	21.5		
11-20	106	26.5		
21-30	93	23.3		
>31	115	28.7		
Total of days spent at sea per month (day)			19.10	5.49
1-15	107	26.8		
16-20	170	42.5		
21-30	123	30.7		
Type of fisherman				
Skipper	267	66.8		
Crew	133	33.2		
Main catchment area				
A	303	75.8		
B[3]	60	15.0		
C0[4]	34	8.5		
C2[5]	3	0.7		

[1]PMR is the Malaysian Lower Education Certificate; [2]SPM is the Malaysian Higher Education Certificate while SPMV is the Malaysian Vocational Certificate; [3]Zone B fishermen (also known as artisanal fishermen), operating 5.1-12.0 nautical miles from shore; [4]Zone C0 fishermen (also known as deep-sea fishermen), operating 12.1-30 nautical miles from shore; [5]Zone C2 fishermen (also known as deep-sea fishermen), operating >30 nautical miles from shore

16-20 days a month at sea while less than one-third of the respondents (30.8%) spent between 21-30 days a month at sea. The majority of the respondents interviewed were Zone A (Zone A fishermen (also known as artisanal fishermen), operating 0.1-5.0 nautical miles from shore) fishermen (75.8%) and it is not surprising that the majority of the respondents were boat skippers (66.8%) as most of the Zone A fishermen use a small or fiber boat since, these are highly affordable. In addition most of the Zone A fishermen in Malaysia are provided with financial and tools assistance which permits some of them to receive free fiber boats from the government.

Table 2 demonstrates each of the statements used to measure the respondents' behavioral intentions towards ICT usage. A total of seven statements were used for this purpose. To identify the level of each statement, the maximum mean score (5.00) was divided by 3 (5.00/3)

Table 2: Behavioral Intention towards ICT usage among fishermen

Statements	Strongly disagree (%)	Disagree (%)	Moderate (%)	Agree (%)	Strongly agree (%)	Mean	SD
I feel left out if not using ICT	1.8	8.3	14.8	42.1	33.0	2.96	0.982
I want more frequent use of ICT	1.0	5.3	23.2	48.5	22.0	2.85	0.855
I would like to add to my ICT knowledge	1.8	5.0	21.5	50.2	21.5	2.84	0.875
I would like to go to courses/seminars on ICT	1.8	7.5	19.7	51.5	19.5	2.79	0.900
I plan to use/add to my ICT tools	2.5	8.3	21.7	45.5	22.0	2.76	0.968
I prefer to use ICT to catch fish compared to old/traditional methods	2.7	18.3	16.5	38.5	24.0	2.62	1.116
I encourage other fishermen to use ICT	3.7	14.5	22.0	44.8	15.0	2.52	1.032

which resulted in three categories of mean score-namely low (1.00-2.33), moderate (2.34-3.67) and high (3.68-5.00). Analyses have proven that all of the statements recorded a moderate level of mean score with the statement I feel left out if not using ICT yielding the highest mean score with 2.96. Such behavioral intention reflects the respondents' social environment with respect to emboldening them to use technology in their fishing routine. Gilligan (2005) demonstrated that social environment is a restricting factor for ICT usage by concluding that communities settling in areas where fewer people use ICT will demonstrate a low level of ICT usage whereas the reverse is true for areas in which the majority of the community adopt and use ICT.

It is good to know that most of the fishermen wish to improve their ICT knowledge as knowledge is one of the main keys for creating positive behavioral intention towards ICT and thus encouraging them to use ICT frequently in their fishing routine. Furthermore, some of the fishermen expressed an interest in attending ICT courses and seminars and such behavioral intentions further increase their ICT knowledge. A good knowledge of how ICT operates will encourage fishermen to adopt and continue to use such tools in their fishing operation. Gutierrez and Gamboa (2010) added that technology usage not only requires standard literacy but also specific technology knowledge as this creates the perception among users that technology usage is simple. A good percentage of fishermen in the present study were shown to have the intention to use/add to their ICT tools however, certain ICT tools such as sonar and radar are quite expensive.

A number of government agencies are currently offering a number of initiatives that provide fishermen with free ICT tools. Additionally, financial agencies such as Agro Bank (Agro Bank is a Government Limited Company (GLC) which finances the agricultural sector and is a continuity of the bank formally known as Bank Pertanian Malaysia which has 40 years of experience in agricultural banking) are willing to offer fishermen substantial loans which will ease their financial constraints with respect to buying ICT for their fishing operation. Interestingly, loans from Agro Bank are offered with zero interest.

CONCLUSION

Based on the results demonstrated it can be seen that all of the statements used to measure the respondents' behavioral intentions towards ICT usage recorded a moderate mean score. Though the mean score recorded was moderate, it can be seen that the respondents are keen to gain more benefits from ICT. This is demonstrated by the fact that some of them expressed feelings of being left out if they do not use ICT while others are eager to use ICT more frequently in their fishing routines. Additionally, some respondents revealed their intention to gain and learn more from ICT-related knowledge and expressed a willingness to attend ICT courses and seminars. The findings reflect that fishermen in Malaysia have positive behavioral intentions towards ICT usage in their fishing operations.

REFERENCES

Davis, F.D., R.P. Bagozzi and P.R. Warshaw, 1989. User acceptance of computer technology: A comparison of two theoretical models. Manage. Sci., 35: 982-1003.

Fishbein, M. and I. Ajzen, 1975. Belief, Attitudes, Intention and Behavior: An Introduction to Theory and Research. Addision-Wasely, Reading, MA.

Gilligan, R., 2005. Questioning the rural adoption and use of ICTs. J. Comput. Sci., 32: 155-167.

Gutierrez, L.H. and L.F. Gamboa, 2010. Determinants of ICT usage among low-income groups in Colombia, Mexico, and Peru. Inform. Soc.: Int. J., 26: 346-363.

Hu, P.J.H, T.H.K. Clark and W.W. Ma, 2003.. Examining technology acceptance by school teachers: A longitudial study. Inform. Manage., 41: 227-241.

Jackson, C.M., S. Chow and R.A. Leitch, 1997. Toward an understanding of the behavioural intentions to use an information system. Decis. Sci., 28: 357-389.

Kuo, Y.F. and S.N. Yen, 2009. Towards an understanding of the behavioral intention to use 3G mobile value-added services. Comput. Hum. Behav., 25: 103-110.

Norsida, M., 2007. The Agricultural Community-50 Years of Malaysian Agriculture. UPM Publisher, Serdang Selangor, Malaysia, ISBN: 978-967-5026-14-0, pp: 128-143.

Norsida, M., 2008. Persepsi terhadap pertanian di kalangan belia tani dan keperluan pendidikan pertanian. Jurnal Pembangunan Belia, 1: 99-114.

Omar, S.Z., M. Abu Hassan, H.A.M. Shaffril, J. Bolong and J.L. D'Silva, 2011. ICT for fishery industry development in Malaysia. Afr. J. Agric. Res., 6: 4166-4176.

Rogers, E.M., 1983. Diffusion of Innovation. 3rd Edn., Collier Macmillan Publisher, London.

Uesugi, S., 2008. A case study of DIY ICT. J. Inform., 10: 46-60.

Venkatesh, V., M.G. Morris, G.B. Davis and F.D. Davis, 2003. User acceptance of information technology: Toward a unified view. MIS Q., 27: 425-478.

Zhang, P. and S. Aikman, 2007. Attitudes in ICT acceptance and use. J. Hum. Comput. Interact., 4550: 1021-1030.