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The Influence of Socio-Economic Factors on Behavioral Intention to Use Mobile Phones among Fishermen in Pangkor Island

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Abstract: The focus of this study is to examine whether socio-economic factors (age, income per month, level of education, days spent at sea, fishermen category and experience as a fisherman) influence behavioral intention regarding the usage of mobile phones among fishermen in Pangkor Island. A total of 250 questionnaires were given to fishermen on the island. For the purposes of analyses, descriptive statistics such as frequency, percentage and mean were employed. Further analysis using independent t-test and Pearson product moment correlation were also performed to determine any significant differences and relationships arising. The results confirm that fishermen in Pangkor Island have favorable behavioral intentions towards mobile phone usage. Further analysis reveals that fishermen with different levels of education possess different behavioral intentions towards mobile phone usage. It can be noted that the factors of age and days spent at sea recorded significant and negative relationships with behavioral intention towards mobile phone usage. A number of discussions are conducted and these can be used by students, researchers and government officers for further studies within the field.

Key words: Behavioral intention, mobile phone, socio-economic factors, fishermen, Malaysia

INTRODUCTION

In this modern day, the mobile phone has become an important communication device. Doubtlessly, the technology benefits various groups within communities and fishermen are one of these. Mobile phones offer various advantages for fishermen. In term of marketing, they acts as carriers and conduits of information which can lessen the information asymmetries in markets and thereby make rural and undeveloped markets more efficient (Abraham, 2007). In addition, mobile phones enhance safety and security aspects for fishermen (Omar *et al*., 2011). Fishermen are exposed to risks such as engine breakdowns and sudden climate changes every time they conduct their fishing routine and by having mobile phones with them, emergency calls can be made quickly. Mobile phones also allow the fishermen to keep in touch with their family members and colleagues while they are conducting their fishing routine. This allows them to share and disseminate emergency information, the best fishing locations and current weather conditions (Omar *et al*., 2011).

Despite the superior communication opportunities provided by mobile phones, behavioral intention determines whether fishermen will use mobile phones in their fishing routine. Behavioral intention has been considered an indication of an individual's readiness to perform a given behavior. It is assumed to be an immediate antecedent of behavior (Ajzen, 2002) and it is affected by consumer attitude. Uesugi (2008) suggested that people with positive behavioral intention are proven to use more technology in their daily tasks or routines while those with negative behavioral intention are seen to use less technology or not to use it at all in their daily lives or tasks. Behavioral intention to use technology can be impeded by individual socio-economic factors,

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whereby younger, higher-earning, more educated and more experienced people are said to use technology to a greater extent in their daily lives and tasks (Shaffril *et al*., 2009; Hassan *et al*., 2009a).

Omar *et al*. (2012) found that a large majority of fishermen in Malaysia brought mobile phones with them to sea; this reflects their positive behavioral intention towards such technology. It is not surprising that so many consider mobile phones to be one of the most importance tools in their fishing routine as fishermen in Malaysia have long been exposed to various types of technology since time immemorial. Mobile phones have become a necessity and an inevitable part of everyday life in this society. For fishermen, it facilitates their daily activities while at sea or on land (Omar *et al*., 2012). Every segment of the fishing population perceives the usefulness of the technology, including a larger proportion of merchants and transporters the biggest beneficiaries of mobile phones (Abraham, 2007). Although, an abundance of studies have been conducted with regards to mobile phone usage among fishermen, several questions relating to which group have more favorable behavioral intentions towards the usage of mobile phones remain unanswered. For instance, do those who are younger, have higher educational achievements, have a higher income, spend more days at sea or have more experience possess more favorable behavioral intentions towards mobile phone usage? Or vice versa for lower higher educational achievements, etc? This study aims to answer these queries.

In Malaysia, fishermen are considered an important group, particularly in terms of their role in ensuring consistent marine supplies for consumers. In recognition of their importance, the government has implemented a number of initiatives such as a monthly allowance worth USD66 and a petrol/diesel subsidy which allows fishermen to purchase fuel at 65 cents cheaper than current market prices. Such efforts have attracted locals to join the fisheries industry and Malaysia currently has a total of 129,622 registered fishermen (Department of Fisheries Malaysia, 2010). A large proportion of these can be found in states such as Sabah, Sarawak, Perak and Selangor. In Peninsular Malaysia, Perak and Selangor have emerged as the main marine suppliers (Department of Fisheries Malaysia, 2010). Pangkor Island is one of the main fishing areas in Peninsular Malaysia and is situated in Manjung, Perak, Malaysia. Despite its strength in tourism activities, the fisheries industry has become one of the main preferences for the economic activities in Pangkor Island.

MATERIALS AND METHODS

The quantitative research was conducted in Pangkor Island. Pangkor Island is situated in Manjung, in the Perak state of Peninsular Malaysia. To date, there is a total of 3,110 registered fishermen working in Manjung. Using a multi-stage simple random sampling technique, a total of 250 registered fishermen were chosen as the respondents. Each respondent was aided by experienced and trained enumerators to facilitate the data collection session. Except for demographic factors, the respondents were given options based on a five-point Likert-type scale for every question asked. The surveys took about 15-20 min per session. Statistical analyses such as frequency, percentage, mean and Pearson's product moment correlation were applied to achieve the objectives of this study.

RESULTS

The results of the socio-economic data focus on six questions relating to age, level of education, income per month, how many days are spent at sea and fishermen category. The fisheries industry in Pangkor Island is gaining inadequate backup from the younger generation, as only 13.2% of the respondents are aged 25 years and below while the majority (63.2%) are aged 41 years or above. The mean score for the respondents' age was 44.11 years. Furthermore, the results show that out of 250 respondents, only three (1.2%) hold a diploma/degree. The majority of the respondents (39.2%) have a primary school level of education while a total of 54.8% of the respondents possess PMR/SPM/STPM level of education which is unsurprising as educated people are often linked with negative perceptions towards the agriculture profession and for them agriculture is often the last choice (Norsida, 2008).

In terms of the fishermen category, 60.8% of the respondents are skippers while 39.2% of are crew members for the vessels or boats. The mean score recorded for income per month (from fishing activities) is RM922.16 (roughly equal to USD 300) which exceeds the poverty level of RM720 month^{-1} set by the Economic Planning Unit of Malaysia. The respondents surveyed can be considered as experienced fishermen as the mean score recorded for experience as a fisherman is 22.82 years and 76.0% have been involved in fishing activities for >11 years. From the result, 140 respondents (56%) spend their days at the sea for 11-20 days a month. In addition, only a small percentage (8%) spend just 1-10 days at the sea. Apart from this, 90 respondents (36%) spend 21-30 days at sea (Table 1).

Table 1: Socio-demographic data of the respondents

Variables	Frequency	Percentage	Mean	SD
Age (years)			**44.11**	**13.93**
<25	33	13.2		
26-40	59	23.6		
41-55	102	40.8		
>56	56	22.4		
Level of education				
Never attended school	12	4.8		
Primary school	98	39.2		
PMR/LCE[1]	81	32.4		
SPM/SPMV[2]	52	20.8		
STPM[3]/Skill certificates	4	1.6		
Diploma	2	0.8		
Degree	1	0.4		
Fishermen category				
Skipper	152	60.8		
Crew member	98	39.2		
Income per month (from fishing activities) (RM)			**922.16**	**526.97**
<700	89	35.6		
701-1,000	118	47.2		
>1,001	43	17.2		
Experience as a fisherman (years)			**22.82**	**13.85**
1-5	36	14.4		
6-10	24	9.6		
11-20	63	25.2		
21-30	65	26.0		
>31	62	24.8		
Days spent at sea (per month)			**19.67**	**5.19**
1-10	20	8		
11-20	140	56		
21-30	90	36		

[1]Lower certificate of education; [2]Malaysian certificate of Education/Malaysia vocational certificate; [3]Malaysia higher education certificate/skill certificates

The mean score for expenses on prepaid/postpaid is RM65.96. The majority spend <RM50 month^{-1} on prepaid/postpaid (The telecommunication airtime fee), compared to those who spend >RM51 month^{-1}. In terms on experience using mobile phones, it can be concluded that only a small number of the fishermen (1.2%) have used a mobile phone for between 21-30 years. In addition, a total of 24.4% has used a mobile phone for 11-20 years while the mean score recorded for this factor was 8.67 years. The respondents spend 4 min on average for every call they make or receive during their fishing routine while 21.6% of them send more SMS messages while they are at sea, compared to 24.0% who send 1-3 SMS messages and 54.4% who never send SMS messages while they are at sea (Table 2).

Behavioral intention towards mobile phone usage among fishermen in Pangkor Island: Tables 3 and 4 show the mean score with regard to fishermen's behavioral intention towards mobile phone usage. The mean score was obtained by calculating the cumulative mean score for each of the statements used to measure behavioral intention. This cumulative score was then divided equally into three categories, namely; low (1.00-2.33), moderate (2.34- 3.67) and high (3.68-5.00). As depicted in Table 3,

Table 2: Patterns of mobile phone usage among fishermen in Pangkor Island

Variables	Frequency	Percentage	Mean
Expenses on prepaid/postpaid (RM)			**65.96**
<50	174	69.6	
>51	76	30.4	
Experience of using mobile phone (years)			**8.67**
1-10	186	74.4	
11-20	61	24.4	
21-30	3	1.2	
Duration of communication for calls made and received during fishing operation (minutes)			**4.06**
0-2	86	34.4	
3-5	128	51.2	
>6	36	14.4	
No. of SMS messages sent during fishing operations			**2.62**
0	136	54.4	
1-3	60	24.0	
>4	54	21.6	

Table 3: Overall mean score of behavioral intention towards mobile phone usage among fishermen in Pangkor Island

Levels	Frequency	Percentage	Mean	SD
Behavioral Intention			**3.34**	**0.774**
Low (1.00-2.33)	22	8.8		
Moderate (2.34-3.67)	134	53.6		
High (3.68-5.00)	94	37.6		

the majority of respondents (53.6%) recorded a moderate mean score, compared to 37.6% of the respondents who scored a high mean score.

Further analysis has been performed for each of the statements used to measure behavioral intention. Based on the analysis, it can be concluded that three out of seven statements recorded a high mean score (3.68-5.00). These statements are related to their intention to bring mobile phones with them during their fishing operations, their feeling of left out if they are not using a mobile phone and the extent to which they encourage their colleagues to use mobile phones within their fishing routine. The high mean score recorded by these statements reflects the respondents' recognition of the importance of mobile phones in their fishing routines; this is not surprising as Omar *et al.* (2012) and Abraham (2007) both mentioned the vital roles played by mobile phones, particularly with regard to safety and security, marketing and communication aspects. The respondents were detected to have no intention to add the numbers of their mobile phone as the statement related to this recorded the lowest mean score. The other three statements which were related to their intention to increase their mobile phone knowledge, use their mobile phones more frequently and attend seminars or courses related to mobile phones were detected to record a moderate mean score.

Differences between behavioral intention towards mobile phones and selected demographic factors: To determine whether there were any differences that might occur between the variables studied, an independent t-test was

Table 4: Statements used to measure behavioral intention towards mobile phone usage among fishermen in Pangkor Island

Statements	Mean
I like to bring my mobile phone with me while conducting my fishing routine	4.18
I feel left out if I am not using a mobile phone	4.11
I encourage other fishermen to use a mobile phone	4.06
I want to use my mobile phone more frequently	3.48
I want to attend courses/seminars relevant to mobile phone usage	2.59
I want to enhance my knowledge with regard to mobile phone usage	2.94
I am planning to own/add numbers of my mobile phone	2.01

Table 5: Differences between behavioral intention towards mobile phone and selected demographic factors

Variables	n	Mean	SD	t	p-value
Fishermen category				0.519	0.604
Skipper	152	3.32	0.796		
Crew members	98	3.37	0.742		
Level of education				5.210	0.0001
<Primary school	110	3.07	0.787		
>Secondary school	140	3.56	0.694		

Table 6: Relationship between behavioral intention and selected socio-demographic factors

Variables	R	p-value
Age	-0.188	0.003
Income	-0.080	0.208
Days at the sea	-0.237	0.001
Experience as a fisherman	-0.002	0.973

performed (Table 5). In terms of fishermen category, based on M = 3.32, SD = 0.796 for skippers and M = 3.37, SD = 0.742; t (250) = 0.519, p = 0.604 it was found that there was no significant difference between the two groups studied; this reflects the possibility that both groups have similar behavioral intentions towards mobile phone usage.

For the purpose of analysis, the level of education category has been re-categorized into two groups whereby those who have never gone to school or possess a primary school and PMR/LCE level of education are included in the group "of <primary school", while those with SPM/SPMV, STPM/Skill Certificates, diplomas and degrees are included in the group ">secondary school". Based on the t-test, M = 3.07, SD = 0.787 for <primary school and M = 3.56, SD = 0.694; t (250) = 5.210, p = 0.0001 for >secondary school; this denotes that there is a significant difference in terms of behavioral intention towards mobile phone usage between the two groups studied. Based on the mean scores, there is a possibility that the secondary school group has a more favorable behavioral intention towards mobile phone usage compared to the <primary school group.

Further analysis using Pearson product moment correlation was conducted to determine any relationships that might occur between behavioral intention and selected demographic factors. The results in Table 6 conclude that behavioral intention towards mobile phone usage has a significant and negative relationship with age and days spent at the sea. This denotes that the older the fishermen are the less favorable their behavioral intention towards mobile phone usage and a similar case can be found for days spent at the sea whereby the higher the number of days spent at the sea, the less favorable the behavioral intention. Nonetheless, although a significant value was recorded, it should be noted that the relationship between these two relationships was negligible. However, no significant relationship was identified between behavioral intention towards mobile phone usage with income and experience as a fisherman.

DISCUSSION

The findings reveal that the fishermen in Pangkor Island have favorable behavioral intentions towards mobile phone usage in their fishing routines. They stated that they bring their mobile phones with them every time they go out to sea and they also encourage their colleagues to bring a phone with them. Favorable behavioral intention towards mobile phone usage can be related to the perceived usefulness and the relevance of such technology to the fishermen's daily tasks (Joseph and Andrew, 2007; Hu *et al*., 2003). According to Omar *et al*. (2012) and Bolong *et al*. (2012), mobile phones offer various benefits to fishermen and are highly relevant to their daily tasks in the sense that mobile phones are used to seek, disseminate and share fishing-related information such as market prices, online applications, weather conditions, professional advice, loan services and business opportunities with their colleagues and related agencies. Moreover via mobile phones, they can agree better prices with dealers, even when they are still at sea. The most important function of mobile phones within fishing activities is certainly related to their roles in enhancing the safety and security of the fishermen, who are frequently exposed to emergencies such as engine breakdowns and sudden climate changes while conducting their fishing routines. There is a possibility that such perceived usefulness and job relevance will increase favorable behavioral intentions among fishermen in Pangkor Island towards mobile phone usage in their fishing routine.

The independent t-test confirms that the level of education makes a significant difference on behavioral intention towards mobile phone usage. Magziwi (2005) and Meso *et al*. (2005) provided a simple explanation for

this scenario by stating that educated people have more favorable behavioral intentions as they are exposed to technology daily and possess higher compatibility with its use. Furthermore, the Pearson product moment correlation proves that the factors age and days spent at sea have a significant and negative relationship with mobile phone usage and a number of possible reasons can be associated with such a scenario. The impacts of age on technology usage have been frequently discussed in the literature and it is common for studies to reveal that older people are hesitant to use technology as they are so attached to traditional ways of doing things (Selwyn, 2004). In the case of fishermen, although mobile phones offer superior functions in terms of safety and marketing aspects, traditional fishermen of which the majority are older people are more likely to rely on indigenous fishing practices such as referring to hills, mountains, the sky, the moon and stars to predict the location of fish and the weather. Some studies (Hassan *et al*., 2009a, b) have argued that problems with technology usage often arise due to people's ignorance regarding the benefits of technology, inadequate technology skills and knowledge and low technological compatibility. As the significant and negative relationship between the factor days spent at the sea and mobile phone usage shows, it is probable that the higher the number days of spent at sea, the less mobile phones are used by the fishermen. This reflects that fishermen will only utilize mobile phones if they need them and will not use them repeatedly for the same purpose.

CONCLUSION

It can be concluded that fishermen in Pangkor Island do have a favorable behavioral intentions towards mobile phone usage in their fishing routine. They consider mobile phones to be important tools and bring them to sea with them. Such behavioral intention is believed to be geared by the superior functions offered by mobile phones in terms of enhancing socio-economic aspects for the fishermen. For the public, mobile phones are vital communication tools and for the Pangkor Island fishermen, it is vital in the sense that it strengthens their safety, security and marketing aspects. Inferential analyses confirm that the level of education has a significant impact on behavioral intention while age and days spent at the sea have significant and negative relationships with behavioral intention towards mobile phone usage.

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