The Role of Culture in Acceptance of Technology Evolution among Administrative Support Personnel in Maran, Pahang Darul Makmur

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Abstract The development of various technologies has affected the environment, human societies and science. Technology evolution has become a big challenge and may change at many levels in the organization either government or private sectors. This acceptance of technology is much influenced by the dimensions of culture; uncertainty avoidance, power distance, individualism-collectivism and masculinity-femininity, defined by everything from language and religion to cuisine, social habits, music and arts. Thus, this study focuses on the role of culture in the acceptance of technology among administrative support personnel employed in the government office, as the organizations depend heavily on them in running their daily operations. It is hoped that the findings of this study will provide useful information in improving the acceptance level of technology evolution at many levels in the organization. 75 respondents were selected and the relationship between dimensions of culture and

acceptance of technology evolution was found to be moderate and positive. Future research can be conducted to examine other factors that may have a significant effect towards acceptance of technology evolution so that job performance can be increased.

Keywords   Acceptance of technology; dimensions of culture; technology evolution.

1   Introduction

With the increasing levels of multiculturalism in today's business and the proliferation and essentiality of information systems, researchers have recently taken an interest in learning more about the influence of cultural differences on organizational commitment (Twati, 2006; Mirchandani & Lederer, 2006; Ford, Connelly & Meister, 2003; Hofstede, 1991). Past studies by the aforesaid researchers have also confirmed that acceptance and adoption of new technology could also be influenced by the cultural beliefs of the users. The findings also confirmed that certain dimensions of culture affect the acceptance and use of information technology (IT) among the users. Kumar and Bjorn-Andersen in Jones and Alony (2007) further claimed that design and management choices in information system are the result of individual values and these values are the product of socio-cultural background. Therefore, the researchers believe that it is imperative to understand the cultural values behind each employee because when these people interface with information technology, human cultural values must be taken into consideration accordingly (Gannon in Merchant, 2007; Jones & Alony, 2007; Al-Gahtani, 2004).   The Hofstede's (1980) cultural dimensions of uncertainty avoidance, power distance, individualism-collectivism and masculinity-femininity were used in this study as the aforementioned dimensions could give a more accurate result of the cultural values among the respondents. The model was used as it had been widely cited and used in many cross-cultural studies (Jones & Alony, 2007; Srite, 2006; Twati, 2006; Al-Gahtani, 2004).

This paper focuses on the role of culture in the acceptance of technology among administrative support personnel employed in the government offices in Maran, Pahang Darul Makmur and the relationship between the two variables. Since the district of Maran is located in quite a secluded area with a more relaxed working atmosphere among the citizens, it is hoped that the study could

provide some interesting findings that could benefit the mostly Malay government employees. In addition, Pahang has been announced as one of the states covered in the East Coast Economic Region (ECER) Plan by the Malaysian Government and it is hoped that this study will bring a positive impact to the district government offices because these offices act as the federal government's administrative arms in achieving the objectives of the ECER plan.

2   Literature Review

Myers and Tan (2002) stated that culture is important for many aspects of business life especially with regard to the design, development and management of information systems protocols and infrastructure. As most technology is designed and produced in developed societies with their cultural values in mind, it would be expected that there would be some social and cultural gaps with less technologically developed societies. Failing to put the information technology implementation process into the proper cultural dimensions can inhibit the success of the process and increase the risks of failure, thus affecting the overall performance of the affected organizations (Al-Gahtani, 2004). Generally, organizations with successful information technology adoption and implementation processes would generate significant performance gains and competitive advantages. Therefore, a better understanding of how cultural differences affect outcome-related variables is considered crucial for researchers and managers interested in employee behaviors and performance in the global marketplace (Chen, Tsui & Farh, 2002; Al-Gahtani, 2004).

Operationalizing a precise definition of culture appears to be complex as the word *culture* has many different meanings. Nevertheless, previous researches (Merchant, 2007; Wen, Zhan & Stump, 2007; Gallivan & Srite, 2005) have defined culture in different ways, with most definitions explaining culture as a common set of characteristics shared by a group of people. However, Hofstede's (1980) definition appears to be the best known to many researchers who have relied on his work in order to make meaningful comparisons between national groups. Therefore, the researchers had chosen Hofstede's model as it had been widely cited and used in many cross-cultural studies. Hofstede defined culture as "the collective programming of the mind which distinguishes the members of one human group from another" (1980, p. 260).

Hofstede analyzed data on the individual personal values of 116,000 IBM employees in 72 countries spanning more than 20 languages, and identified four major dimensions of culture. The strengths of Hofstede's cultural dimensions are unique and significant as no one has performed such an intense and varied research on cultures. Therefore, the use of Hofstede's culture dimensions would allow the researchers to better measure and examine the social culture of respondents in this study.

2.1   Individualism-Collectivism

This dimension of culture describes how people in a culture relate to each other (Hofstede, 1980). People from individualistic cultures live in loosely knit societies. They care primarily for themselves and their immediate families while individuals from collectivist cultures look after the interest of their group before that of themselves. Mirchandani and Lederer (2006) found that Malaysians have low individualism-collectivism scores which mean that they focus on the interests of their subordinates rather than themselves. In a society low on individualism-collectivism, people from birth onwards are integrated into strong, cohesive groups, often extended families, who continue protecting them in exchange for unquestioning loyalty. In the workplace, relationships prevail over tasks and therefore employers and employees view their relationship as a moral contract. Managers from such cultures are more likely to follow group consensus, have favorable attitudes toward teamwork, and prefer reward systems that provide incentives for group achievement. Thus, these managers are less demanding that subordinates adhere to their directives.

2.2   Power Distance

The dimension of Power Distance describes how a society accepts unequal distribution of power in institutions and organizations (Hofstede, 1980).   Societies with high power distance have pronounced inequalities of power and wealth within them. Ford et al. (2003) stated that citizens of such societies are subservient to those who have more power and prefer a high level of centralization of authority. Managers in high power distance culture expect to use the privileges inherent in their position to give orders and work actively to maintain their status and control over others because the use of a participative leadership style might be viewed as a sign of incompetence or irresponsibility (Mirchandani & Lederer, 2006). On

the other hand, workers in countries having low power distance prefer decentralization of authority and managers only rarely give signals of their status (Twati, 2006). These managers try to minimize the differences between themselves and their subordinates by delegating and sharing power to the greatest extent possible. According to Jones and Alony (2007), Malaysia ranks high on Hofstede's scale showing that there exist large distances between ranks in an organization, therefore, communications among the employees are likely to be through the command chain rather than direct interaction, and access of information through technology such as the usage of e-mails in the organization.

2.3   Uncertainty Avoidance

The Uncertainty Avoidance dimension describes how a society accommodates uncertainty and ambiguity in the environment (Hofstede, 1980). Individuals from cultures with high uncertainty avoidance are more risk averse, prefer greater structure in every situation, and are more conscious of societal norms, while individuals from cultures with low uncertainty avoidance are more risk taking and open to deviations from societal norms. According to Hofstede (1991), Malaysia has quite a high uncertainty avoidance culture though the scores are not as high as the scores obtained for its dimension of power distance. As found by Mirchandani and Lederer (2006), managers from high uncertainty avoidance cultures such as Japan and Greece instill strict laws, formal reporting rules, safety, and security measures in the organization, and they expect subordinates to follow their plans. On the other hand, managers from low uncertainty accepting cultures such as Denmark and Sweden are more tolerant of different opinions and encourage differing views from their subordinates. In relation to the study, the findings of Mirchandani and Lederer (2006) suggested that uncertainty avoidance differentiates between how different cultures accept new information technology. Therefore, dependency on information system brings another dimension of uncertainty and risk among the employees, thus affecting their performances.

2.4 Masculinity-Femininity

The last dimension which is Masculinity-Femininity does not refer absolutely to the dominance of gender. It depicts the degree to which masculine traits like authority, assertiveness, performance and success are preferred to female characteristics like personal relationships, quality of life, service and welfare (Hofstede, 1980). According to Mirchandani and Lederer (2006), Japan and Switzerland have cultures high in masculinity-femininity. The people value achievement and the aggressive pursuit of goals over good relationships, harmony, and care for others. In the workplace, managers expect their subordinates to be decisive, assertive, and independent, and to resolve conflicts by fighting them out. In contrast, Malaysian managers in which the culture is low in masculinity-femininity, focus on quality of life in the workplace and strive for consensus within the organization (Hofstede, 1991). They also believe in using compromise and negotiation to resolve conflicts.

3 Methodology

3.1 Participants

A total of 75 out of 101 administrative support personnel employed in the government offices in the district of Maran, Pahang Darul Makmur were selected for this study. They worked as Administrative Assistant N17 (Secretarial), N17 (Clerical), and N11 (Typist).

3.2 Instruments

A set of questionnaires which was adapted and modified from previous research was used in this study. The questionnaire consisted of three sections; Section A (Demographic), Section B (Davis, 1989 TAM) and Section C (Hofstede's Cultural Dimensions). Section B consisted of eight questions about perceived ease of use of technology (PEoU) and perceived usefulness of technology (PU). While, Section C which measured the cultural dimensions of the respondents consisted of five questions on uncertainty avoidance, five questions on power distance, four questions on individualism-collectivism and seven questions on masculinity-femininity. The types of questions used in this study were closed-ended with a fixed-range of possible answers, and the responses were made on a 5-point

Likert scale that ranges from 1 = *Strongly Disagree* to 5 = *Strongly Agree* for Section C.

3.3   Procedure

The data were collected using direct questionnaire method and the Statistical Procedures for Social Sciences (SPSS) 20.0 was used to code and analyze them. The data were analyzed using descriptive, correlational and regression analyses. The data were tested first for the normality so that the analyses would be appropriable. The research hypothesis designed for this study is as follows.

> RH: There exists positive relationship between the dimensions of culture and acceptance of technology evolution.

4   Findings

17 males and 58 females of 75 administrative support personnel were involved in this study. They were between 21 to 58 years old with 53 (70.7%) of them being SPM holders. Majority of them (73.3%) worked as Administrative Assistant N17 (Clerical), followed by 25.3% from N11 (Typist), and the least number of respondents, 1.4% from N17 (Secretarial). Based on their working experience, 44 (58.7%) of them had more than 10 years of working experience.

Table 1 shows the perceptions on culture arranged in descending order from the highest to the lowest mean. High mean score indicated a higher level of perception toward the dimensions of culture whilst lower mean score indicated a lower level of perception toward the dimensions of culture. The dimension of culture which obtained the highest mean score was masculinity-femininity, followed by the dimension of uncertainty avoidance, power distance while the lowest mean score was individualism-collectivism. From the results, the findings showed that the respondents perceived masculinity-femininity and uncertainty avoidance as the most influential dimensions of culture in the workplace.

Table 1: Administrative Support Personnels' Perceptions on Culture

Variables	Mean	Standard Deviation
Acceptance of Technology Evolution	4.2456	0.4405
Dimensions of Culture	3.8664	0.3632
Uncertainty Avoidance	4.1173	0.4199
Male	3.9412	0.3299
Female	4.1690	0.4317
Power Distance	3.8240	0.5541
Male	3.6706	0.4634
Female	3.8690	0.5738
Individualism-Collectivism	3.2233	0.5879
Male	3.1471	0.6128
Female	3.2457	0.5840
Masculinity-Femininity	4.3010	0.4017
Male	4.1345	0.3516
Female	4.3498	0.4051

Table 2: Normality Test of Variables

Variables	Shapiro-Wilk (p-value)	Skewness
Acceptance of Technology Evolution	0.031	-0.010
Dimensions of Culture	0.008	0.416
Uncertainty Avoidance	0.004	0.253
Male		
Female		
Power Distance	0.012	-0.547
Male		
Female		
Individualism-Collectivism	0.001	0.811
Male		
Female		
Masculinity-Femininity	0.013	0.098
Male		
Female		

By referring to Table 2, the p-value of Shapiro-Wilk for normality test showed that the entire data of variables tested in this study was not normally distributed because the values were less than 0.05. However, if the skewness value is in between -1 and 1, then the data was approximately normally distributed (Leech, Barret & Morgan, 2005). This statement was also supported by Myers and

Well (2002). Therefore, the data could be said as approximately normal distribution by referring to the skewness value.

Regression analysis could be used to answer the stated research hypotheses of this study. A regression analysis was performed to determine the relationship between the dimensions of culture and acceptance of technology among administrative support personnel employed in the government offices in Maran. From the analysis, it was found that the model was significant ($F_{4,70} = 3.335$, p-value = 0.015) and the research hypothesis stated that there existed positive relationship between the dimensions of culture and acceptance of technology evolution, accepted at 5% level of significance. The total variance was only at 16.00% which showed the acceptance of technology evolution explained by their dimensions of culture and the other 84.00% were explained by other factors. Correlation value (r = 0.400) showed that there existed a moderate, positive relationship between the two variables. In addition there was no multicollinearity that existed based on the collinearity test because the value of tolerance for each predictor variable was less than 0.1 and the value of variance inflation factors, VIF was less than 10 as shown in Table 3. The estimated model obtained between the variables was

$$Y = 2.287 + 0.335\ X_1 - 0.003\ X_2 + 0.016\ X_3 + 0.125\ X_4$$

Table 3: Regression Analysis between Variables

Variables	Coefficient	t (p-value)	Collinearity Statistics	
			Tolerance	VIF
Constant	2.287	0.000		
Predictor variables				
Uncertainty Avoidance, X_1	0.335	0.024	0.725	1.380
Power Distance, X_2	-0.003	0.979	0.710	1.408
Individualism-Collectivism, X_3	0.016	0.868	0.701	1.427
Masculinity-Femininity, X_4	0.125	0.386	0.627	1.595

Results also showed that the uncertainty avoidance dimension was a significant predictor of acceptance of technology evolution since the p-value was 0.024 (p-value < 0.05). In addition, it could be concluded that with the increase in the agree level in the

masculinity-femininity, uncertainty avoidance and individualism-collectivism dimensions, the workers tend to have positive response towards acceptance of technology evolution. Meanwhile, as power distance dimension increased in agree level, the workers tend to have negative response towards acceptance of technology evolution.

4.1   Discussions

The high mean score for the masculinity-femininity dimension was not surprising as research has confirmed that masculinity has much to do with the achievement orientation of the respondents (Hofstede, 1980; Hofstede, 1991; Ford et al., 2003). Despite the fact that the respondents were from the government offices and the generalization made about government employees, the results of this study suggest that the respondents have been more flexible to changes and become more achievement oriented. This could be the result of the continuous effort made by the Government in improving its public services and performance by providing better infrastructure and facilities as well as better remunerations to the public servants. These efforts were indicated in the Eighth Malaysia Plan (Ramlah, Nor Shahriza & Mohd Hasan, 2007). Therefore, it can be concluded that this dimension of culture is very influential in ensuring good acceptance of technology evolution among the users.

In spite of the high achievement orientation of the respondents, the high mean score for uncertainty avoidance in this study indicated that the respondents were still more risk averse and preferred greater structure in every situation, and were more conscious of societal norms. As mentioned by Mirchandani and Lederer (2006), managers from high uncertainty avoidance cultures instilled strict laws, formal reporting rules, safety, and security measures in the organization, and they expected subordinates to follow their plans. Generally, this finding is consistent with the nature of the government offices in Malaysia which still function using the hierarchical structure. However, according to Ford et al. (2003), the characteristics of uncertainty avoidance could cause the users to be less likely to accept new technology as the introduction of new technology could introduce new uncertainty and risk to them.

According to Hofstede (1991), Malaysia was among the countries that have a high power distance culture, with stricter control of access to information being mandated, often on a need-to-

know basis. The result of this study, however, suggested a contradicting output as the mean score obtained for the dimension of power distance was rather low. The result, however, indicated that in accepting new technology, the respondents favored a less centralized system and less restricted information as they treated information as an essential element for those people who were entitled to use it. Thus, this could lead to a higher acceptance of system adoption by the respondents. Moreover, Twati (2006) stated that workers in countries having low power distance preferred decentralization of authority and access of information through technology. Meanwhile, countries having high power distance preferred minimal sharing of information using technology and preferred a high level of centralization of authority, thus, not encouraging the acceptance of new technology (Ford et al., 2003).

Literature suggested that technology acceptance would be more acceptable in a country with individualist culture than collectivist culture (Twati, 2006). However, in this study, this culture dimension scored the lowest mean among the other dimensions which suggested a very different perception. The researcher believed that the finding which indicated that respondents of this study focused more on the interests of their subordinates rather than themselves was due to the naturally accommodating nature of the multi-racial Malaysians. Furthermore, as the study was conducted in the government offices, true to the Malaysian values, managers from this culture were more likely to follow group consensus, had favorable attitudes toward teamwork, and preferred reward systems that provide incentives for group achievement. Therefore, despite the contradicting findings from previous research, the findings are definitely unique to Malaysians and are further supported by Mirchandani and Lederer (2006) which confirm that Malaysians do have lower Individualism-Collectivism scores.

Based on the correlation value obtained, the finding is consistent with the findings of previous research which found that culture does, to a certain degree, influence the adoption of information system among the users (Twati, 2006; Al-Gahtani, 2004; Myers & Tan, 2002). As indicated by Twati (2006) in his study on the societal and organizational cultures' influences on the adoption of information systems in the Arab countries, the cultural dimensions of power distance and uncertainty avoidance have the most influential role on the adoption of information system among the users while the dimensions of masculinity-femininity and collectivism-individualism

have a partial influence on the adoption. This finding differs from the study done by Twati (2006), which indicated that the difference was due to the characteristics of the sample used and the different social culture of both countries. Therefore, as confirmed by Al-Gahtani (2004), it is of importance to note that culture does have the capability, to a certain degree, to influence the acceptance and adoption of new information technology among the users.

5   Conclusions and Recommendations

The findings showed that the respondents perceived masculinity-femininity as the most influential dimensions of culture in the workplace and individualism-collectivism obtained the lowest scores among all dimensions showed how the respondents valued teamwork and promoted commitment to members' well-being and loyalty. In addition, culture showed a significant relationship towards acceptance of technology evolution with the occurrence of moderate positive relationship. Therefore, it can be concluded that culture significantly influences the acceptance of new technologies among the users. According to Al-Gahtani (2004), the success of the process in implementing new information technology could be inhibited and the risks of failure could be increased should the proper social context and cultural dimensions of the concerned parties not be properly identified and addressed. Ford et al., (2003) further supported the statement that a number of suggested factors such as the norms, values and languages that caused national differences may affect the information system use and implementation in a country. As such, Merchant (2007) who looked at the influence of cultural values on the acceptance of information technology suggested that it was imperative to understand the culture of the employees as the cultural orientation could greatly facilitate the adoption and implementation of the information technology. Gannon, in Merchant (2007) pointed out that one needs to understand the cultural values behind each employee as 25 per cent to 50 per cent of an employee's behavior on the job is culturally determined. As a conclusion, the results of the study suggest that culture is an important factor to consider as it plays an important role when introducing new technology to the workers and the organization.

It is recommended that future research be conducted to examine the role of culture in acceptance of technology evolution for different sectors or job positions in government or private sectors

with bigger sample size. In addition, it is also suggested that researchers identify other factors that may have a significance effect towards acceptance of new technology and also the dimensions of culture directly towards job performance. Therefore, using dimensions of culture as the independent or moderating variable in a study could provide an interesting finding to the existing studies and can act as a basis for future research, thus, contributes further to the theory and body of knowledge in this field. Recently, most research was focused on issues related to information systems management and to information systems while the dimensions of national culture outlined by Hofstede (1980) have not been frequently used to develop and to build theory. As such, the researchers believe that it is very important to consider studying culture in the Malaysian context as national culture of every country differs greatly from the others and it may affect the implementation and use of the technologies (Hofstede, 1980; Ford et al., 2003; Merchant, 2007). Furthermore, based on the same literature and the findings of this research, the researchers can conclude that failure to understand the cultural dimensions of individuals employed in an organization could lead to rejection of new technology by the people as culture is quite a significant factor to consider when introducing new technology. As mentioned by Gannon in Merchant (2007), it is imperative to understand the cultural values behind each employee as the behavior on the job is determined by the culture.

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