



Campus-Wide Information Systems

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Article information:

To cite this document:

Norshidah Mohamed, Nor Shahriza Abdul Karim, Ramlah Hussein, (2012) "Computer use ethics among university students and staffs: The influence of gender, religious work value and organizational level", Campus-Wide Information Systems, Vol. 29 Issue: 5, pp.328-343, <https://doi.org/10.1108/10650741211275099>

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<https://doi.org/10.1108/10650741211275099>

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Computer use ethics among university students and staffs

The influence of gender, religious work value and organizational level

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Abstract

Purpose – The purpose of this paper is to investigate the extent to which individual characteristics, which are gender, religious (Islamic) work value, and organization level (students and staff), are related to attitudes toward computer use ethics. This investigation is conducted in an academic setting in Malaysia, among those subscribing to the same religious value.

Design/methodology/approach – The research used a cross-sectional survey approach in an attempt to achieve the objective. A total of 550 responses were collected from academic staff and students in an institution of higher learning in Malaysia. Respondents were given several scenarios of ethical behavior to rate their attitudinal directions in computer work ethic. Their perceptions would indicate whether they are inclined towards ethical or unethical types of computer use behaviors based on the action in the scenarios.

Findings – The findings indicate that individual characteristics consisting of individuals' value for Islamic work ethics and level in the organizational hierarchy are linked to attitudes toward ethical computer use. However, there was no support to suggest that attitudes toward ethical computer use are related to gender.

Research limitations/implications – This exploratory study may spark more investigation into the area of computer ethics, which is in need of more research. This study also contributes significantly in confirming findings in similar research on individual characteristics and ethics in computer use, and in providing a methodological approach for measuring the construct of ethical computer use attitude and personal ethical work values by using behavioral scenario measures.

Practical implications – This research should contribute significantly in the area of Business Ethics and Management Information Systems courses for both undergraduate and postgraduate business programs. The fact that individual characteristics contribute significantly in the ethical use of computers may lead to better insights into computer misuse and allow better preventive measures to be taken by organizations through Ethics and Management Information Systems curricula in business education.

Originality/value – The research provides a unique perspective of computer use ethics, which is not much covered in the literature. The measurement produced can be used as a research tool for more exploratory and explanatory research in computer use ethics, and as an evaluative tool for organizations in hiring the right personnel and providing training and motivation for more productive and ethical employees.

Keywords Malaysia, Islam, Ethics, Religion, Individual behaviour, Islamic work ethics, Religious work ethics, Computer ethics, Values and ethics

Paper type Research paper



1. Introduction

Information technology (IT) has benefited individuals, organizations and businesses in ways that are beyond what we could have thought in the past decade. However, the use of computers is also subjected to abuse in ways that no ordinary human being can imagine. Incidents of computer abuse manifest themselves in many forms including surfing the internet for non-work-related purposes and engaging in various aberrant activities such as fraudulence, plagiarism and falsification (Karim *et al.*, 2009). Computer abuse continues to proliferate in organizations as computers become pervasive and inevitable to users in knowledge-based societies (Peterson, 2002; Conger and Loch, 1995). The consequence to this emerging phenomenon can be highly costly to organizations. Evident in a recent report indicates, “a typical company of 1,000 employees could lose up to £2.5m a year through non-business use of the Internet”[1]. Further, a survey published by an employment law firm in Peninsula Ireland revealed that Irish employees spent an average of 90 minutes per day on social networking sites, which worked out to be 43 working days per year (reported in O'Donnell, 2008).

The issues of ethical and unethical use of computers have drawn immense attention. They could be categorized into privacy, property, crime and abuse, power and responsibility, professional practice, accountability and liability (Heron *et al.*, 2007). Accordingly there are various streams of researches that have presented perspectives on computer abuse (Lee and Lee, 2002; Lee *et al.*, 2004; Wiant, 2005; Karim *et al.*, 2009), discussed information from the ethical perspective (Desai and von der Embse, 2008; Brey, 2008), suggested adherence to religious teachings (Al-A'ali, 2008), discussed issues of ethical guidelines in organizations (Peterson, 2002; Foltz *et al.*, 2005, 2008), provided insights into ethical decision making (Loch and Conger, 1996; Gattiker and Kelley, 1999; Leonard and Cronan, 2005; Haines and Leonard, 2007; Heron *et al.*, 2007) and investigated the related area from the perspective of internet use ethics (Akhbulut *et al.*, 2008; Karim *et al.*, 2009).

Given the importance of ethics, business education in colleges have incorporated ethics in many courses at both undergraduate and postgraduate levels while a typical management information systems (MIS) course now contains a module of computer ethics in its syllabus. Likewise, in organizations, human resource policies and trainings are developed to create awareness on ethical and appropriate use of the computers[2].

Yet, despite the existence of guidelines at workplace and formal training in ethics through academic curriculum, employees are often exposed to ethical dilemmas regarding the appropriate use of company's assets at workplace. Often time, guidelines and rules are breached and people still engage in unethical behavior. Accordingly, the decision to act unethically can be attributed to their attitudes and perceptions toward such behaviors (Ajzen and Fishbein, 1980). People may have positive attitudes toward ethics, which may lead them to comply with the value, while others, may have little value or negative attitudes toward ethical behavior. These are perhaps those who can be identified through certain characteristics, which are tied to their individual attributes. This is in line with Bommer *et al.* (1987), Ford and Richardson (1994), Paradice (1990), Loch and Conger (1996) and Pierce and Henry (2000) – who identified personal characteristics as an influence on individuals' ethical decision making to engage in such behaviors positively or negatively.

The notion of prediction of behavior from attitude or attitudinal value to such behavior has been well established through the work of Ajzen and Fishbein (1980). Therefore, in modeling behavior that arises from ethical value, the use of theory of

reasoned action (TRA) and planned behavior (TPB) by Ajzen and Fishbein (1980) are considered appropriate in understanding ethical behavior in computer use. In addition, such attitude can be attributed to various aspects of individual characteristics such as personality (Karim *et al.*, 2009), demographic, personal goals, motivation, values and organizational position (Bommer *et al.*, 1987).

Accordingly, this research attempts to investigate the extent to which ethical beliefs and attitudes can be influenced by several characteristics of individuals namely gender, employment level and work values. In developing our conceptual framework for the study of computer ethics, the work of Bommer *et al.* (1987) and Ford and Richardson (1994) are found relevant in our attempt to associate between individual characteristics and attitudes toward computer ethics. Bommer *et al.* (1987) identified environmental as well as individual characteristics as factors affecting ethical decision making of individuals. On the other hand, Ford and Richardson (1994) identified individual decision maker's characteristics including, gender and level of employment as influential factors of ethical beliefs and decision making. Our research framework involving computer ethics and the influence of individuals' characteristics was, therefore, developed based on these reviews.

2. Research framework and hypotheses

2.1 Attitudes toward computer use ethics

Moor (1985) identifies that a typical problem in computer ethics arises out of a "policy vacuum" about how computer technology should be used. Computer ethics would consider personal and social policies essentially to help individuals determine what they would do when faced with a dilemma. Floridi and Sanders (2002) stressed that computer ethics stemmed from practical concerns arising in connection with the impact of information and communication technologies on contemporary society. Bommer *et al.* (1987) proposed a conceptual model of ethical and unethical decision making. The model identified a decision maker's social environment, government/legal environment, work environment, professional environment, personal environment and individual characteristics as factors that would affect ethical and unethical decision making. Based on a review of empirical literature, Ford and Richardson (1994) suggested individual decision maker's characteristics and situational factors influenced ethical beliefs and decision making. Accordingly, individual characteristics of the decision maker received the most attention among the research community. A subsequent experimental study that compared MIS subjects and non-MIS, found significant differences in ethical attitudes between the two (Paradice, 1990). In a survey of Association of Information Technology Professionals, Pierce and Henry (2000) found significant differences in judgments for individual self, co-workers and organization on computer use ethics. We build on these prior researches to understand individual characteristics and attitudes toward computer use ethics.

2.2 Individual characteristics and attitudes toward computer use ethics

There are a considerable number of researches that explore individual characteristics and computer ethics (Wong, 1985; Banerjee *et al.*, 1996; Loch and Conger, 1996; Pearson *et al.*, 1997; Dawson, 1997; Chow and Choi, 2003; Leonard *et al.*, 2004; Haines and Leonard, 2007). Findings from these studies indicate a mixed result on the influence of some individual characteristic' variables such as gender, age group and occupational level, on computer use ethics. In this research, we focus on gender, individual's level in

organizational hierarchy and individual's value for work ethics using Islamic work ethics.

2.3 Gender

The study on gender and ethics continues to receive immense attention although there are mixed findings for the relationship between gender and ethics. Wong (1985) reported that male perpetrators outnumbered female culprits by the ratio 4:1. Accordingly, he noted that male criminals were bolder than their female counterparts and made off with richer pickings. In another study, Banerjee *et al.* (1996) found that gender was significantly associated with ethical behavior of information systems personnel. The study made by Loch and Conger (1996) revealed that while men tended to rely on their attitudes, women depended on social norms in guiding them toward ethical decisions in computer use. In the business environment, Dawson (1997) found that ethical differences between men and women were confined to relational context; a term used in the sales profession. Kreie and Cronan (1998) surveyed 307 students at a Midwestern university and found that "men and women were distinctly different in their assessment of what is ethical and unethical behavior." Several recent studies indicate that gender is related to ethics (Kim, 2003; Leonard *et al.*, 2004; McCarthy *et al.*, 2005; Leonard and Cronan, 2005; Dorantes *et al.*, 2006; Haines and Leonard, 2007; Akbulut *et al.*, 2008). However, in a study of 500 information systems personnel, Pearson *et al.* (1997) found that the evaluation of ethical behavior was not related to gender. In a study of managers of an IT club in Hong Kong, Chow and Choi (2003) did not find the relationship between gender and attitudes toward ethical issues. Further, Moores and Chang (2006) found limited support for the relationship between gender and software piracy. Hence, it is hypothesized as follows:

H1. Gender is significantly related to attitudes toward computer use ethics.

2.4 Individual's level in organizational hierarchy

Prior researchers attempted to relate ethics to individuals' occupational level in organizational hierarchy. Dawson (1997) found the evidence to suggest that ethical standards became higher with years of experience for both men and women. In a comparison of students and professionals, Cappel and Windsor (1998) concluded that professionals demonstrated the use of principled moral reasoning in making ethical decisions considerably more often than students. In Hong Kong, Chow and Choi (2003) found that individuals' position in organizations was related to attitudes toward ethical issues. This is consistent with the findings made on Korean IT professionals (Kim, 2003) for specific ethical scenario. Other studies like Banerjee *et al.* (1996) showed that individual's duration of work experience and occupational position did not relate to ethical behavior in organizations. Therefore, we hypothesize:

H2. Individuals' level in organizational hierarchy is significantly related to attitudes toward computer use ethics.

2.5 Individual's value for work ethics

Individual's value for work ethics is a complex concept. It may be viewed from occupational perspective (Hill and Petty, 1995). In an organization, individual's value for work ethics is a particular essential criterion in building, developing, shaping and sustaining the organization. It has also been said that in the USA, work ethics

attributed to the nation's greatness (Pierson and Holmes, 2005). Further, employers valued job candidates' strong work ethics (Hill and Petty, 1995).

On the other hand, individual's value for work ethics may be viewed from a religious and moral perspective. Clark and Dawson (1996) highlighted the importance of religiousness on ethical judgments. In a survey of students and information systems professionals, Cappel and Windsor (1998) found that those with religious affiliation differ significantly in attitudes toward computer use in selected cases. Kreie and Cronan (1998) concluded that personal values were influential in making judgments about ethical behavior. Pierce and Henry (2000) suggested that individual's uncertainty or misunderstanding of appropriate behavior could result in unethical acts which would perhaps be attributable to a lack of proper guidance in decision making. It could be argued that in such situations, individuals might turn to personal values and work ethics as a guiding principle. Leonard *et al.* (2004) summed up that a person's moral judgment could help in ethical decision making. Dorantes *et al.* (2006) found that religiosity had influenced individual moral intensity in the US research setting. This is consistent with the finding on Korean IT professionals (Kim, 2003) for specific ethical scenario. However, Chow and Choi (2003) did not find the relationship between individual religious values and attitudes toward ethical issues for IT managers in Hong Kong.

The issue of Islamic work ethics has drawn scholars' attention in the last two decades as evident in Ali (1988), Yousef (2000, 2001), Ab. Rahman *et al.* (2006), Ali and Al-Owaihan (2008), Ali and Al-Kazemi (2007), Rokhman and Omar (2008), Al-Ghamdi (2010) and Shakil (2011). In the United Arab Emirates, Yousef (2000) found employees' Islamic work ethic directly and positively influenced their attitudes toward organizational change and organizational commitment. In another study, Yousef (2001) concluded Islamic work ethic moderate the link between organizational commitment and job satisfaction. More recently, Ab. Rahman *et al.* (2006) found Islamic work ethic related to organizational commitment in a Malaysian local bank case study. In Kuwait, Ali and Al-Kazemi (2007) found Islamic work ethic related significantly and strongly to loyalty. Rokhman and Omar (2008) and Rokhman (2010) investigated employees in Central Java and concluded that Islamic work ethic influenced job satisfaction and organizational commitment. Ali and Al-Owaihan (2008) suggested that Islamic work ethic contributed to higher performance, widespread prosperity and societal welfare while Al-Ghamdi (2010) found evidence for Islamic work ethic linking to employees' attitudes toward organizational change in Saudi Arabia. Shakil (2011) proposed Islamic work ethics impact on organizational commitment, job satisfaction and rewards. Based on these premises, it is hypothesized that:

- H3. Islamic work ethics is significantly and negatively related to attitudes toward computer use ethics.

2.6 The framework

The hypotheses derived above, have therefore, led to the illustration of the research framework shown in Figure 1. In this investigation, an attempt is made to relate between the three individual characteristics variables and the attitudinal dimension of computer use ethics. While, the solid line indicates the relationships under investigation, the dotted line between the actual behavior and attitudinal dimension is an indication of how TRA and TPB is applied in this research (Ajzen and Fishbein, 1980).

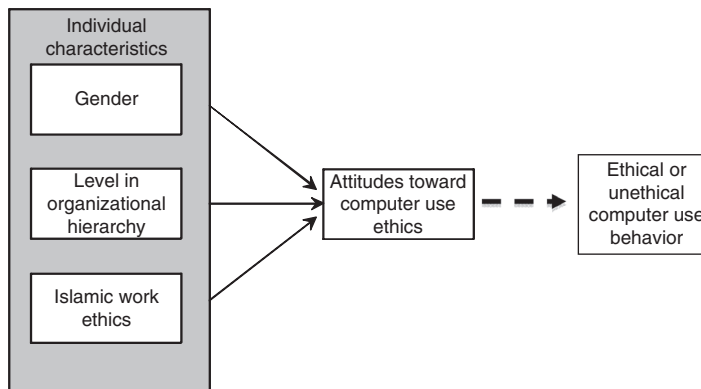


Figure 1.
Research model

Due to high predictability of behaviors from individual's attitude, as the theories posited, it is therefore considered sufficient to use attitudinal measures in research instead of observing the actual behaviors, which are considered highly complicated using the cross-sectional survey approach. In this respect, measures of attitudes toward ethical computer use behavior can be expected to reflect the degree of which an individual is prone to engaging in an ethical or unethical behavior of computer use.

3. Research methodology

The research used a self-administered survey research method. Questionnaires were distributed to undergraduates, postgraduates and academic staffs from various academic disciplines at a leading Malaysian university. One of the strategies of this research is to adapt previously validated instruments.

There were three sections in the questionnaire. Section 1 contained questions to probe respondents' values for work ethics. As most participants were Muslims, we adopted and adapted the Islamic work ethic instrument to operationalize the concept of individual values for work ethics. This is consistent with Al-A'ali (2008). Eight statements were adopted from Ali (1988) as measures for individual value for work ethics. Respondents were required to evaluate agreement to statements about work ethics that used a seven-point Likert scale. A seven-point represented strongly agree while a one-point represented strongly disagree to the statements provided. Section 2 provided nine computer-related behavior scenarios that were used to elicit respondents' attitudes toward responsible use, responsibility, acknowledgment, software piracy, unauthorized use of software, handling a disruptive behavior, use of company's asset for personal and non-profit purpose, access to information for personal gain or profit, access to others' information for employer's or company's profit. This approach has been used in other and previous computer ethics studies. Measures were adopted from Paradise (1990) and Pierce and Henry (2000). Respondents were requested to first read each scenario and judged whether they agreed with what the action that the person in the scenario adopted (see Appendix). Each response was to be evaluated on a seven-point Likert scale. A seven-point represented strongly agree (ethical) while a one-point represented strongly disagree (unethical) with the action taken. Section 3 contained questions to elicit individual characteristics about the respondents: gender, age, formal academic qualification, prior formal training in ethics, ethnicity and length of work experience.

Data were analyzed using a two-step statistical analysis approach. The first step entails the use of descriptive analysis to gain insights into the respondents' profile. The second step uses inferential analysis in answering the research question and tests the hypotheses.

4. Findings

4.1 Profile of respondents

A total of 550 usable questionnaires were collected. Table I shows the summary profile of respondents. The majority of the respondents were female. Those in the age group of 20-29 and students made up a large proportion of the respondents. Most of them indicated that they had had prior formal training in ethics. The predominant ethnicity was Malaysian. The average work experience is three years.

4.2 Islamic work ethics values

The use of exploratory factor analysis on the values for Islamic work ethics and attitudes toward computer use ethics has resulted in one and two component matrix, respectively, shown in Table II. With 0.3 thresholds for sample size of 550 (Hair *et al.*, 1998), no measure was omitted from the conceptualized factors. A reliability test was conducted and the Cronbach's α was 0.837 for Islamic work ethics measures. An analysis of each response was then performed on individual values for work ethics measure.

A higher mean indicates an individual's strong value for work ethics. As shown in the table, individuals reported strong value for work ethics. Further, they indicated the strongest value comes from carrying out work to the best of ability. A lower mean indicates an individual's weaker value for work ethics. Of the eight measures, the weakest measure is evident through cheating in work is a vice. Based on the overall

Individual characteristics	Items	Frequency	%
Gender	Male	237	43.1
	Female	305	55.5
	Missing	8	1.4
Age	< 20	4	0.7
	20-29	417	75.8
	30-39	58	10.5
	40-49	52	9.5
	> 49	12	2.2
	Missing	7	1.3
Academic staff or student?	Academic staff	143	26.0
	Student	407	74.0
Educational background	High school	179	32.5
	Bachelor's degree	247	44.9
	Master's degree	39	7.1
	Doctorate	73	13.3
	Others	1	0.2
	Missing	11	2
Had prior formal training in ethics?	Yes	398	72.4
	No	131	23.8
	Missing	21	3.8
Ethnicity	Malaysian	452	82.2
	Others	75	13.6
	Missing	23	4.2

Table I.
Profile of respondents

Individual's value for work ethics measures	Mean	Minimum	Maximum	<i>n</i>	SD	Factor loading
1 Dedication in work is a virtue	6.08	1.00	7.00	548	1.21	0.759
2 Money earned through manipulation at workplace is harmful	5.59	1.00	7.00	548	1.67	0.683
3 Devotion to quality work is a virtue	5.80	1.00	7.00	549	1.37	0.743
4 Exploitation in work is not praiseworthy	5.52	1.00	7.00	542	1.68	0.661
5 Cheating in work is a vice	5.10	1.00	7.00	541	2.15	0.566
6 One should carry out work to the best of his ability	6.24	1.00	7.00	548	1.23	0.785
7 Work is a source of self-respect	5.90	1.00	7.00	550	1.25	0.756
8 One should take community affairs into consideration in his/her work	5.78	1.00	7.00	550	1.29	0.690
Overall	5.76					

Table II.
Profile of individuals' values for work ethics measures

average scores, the results imply that students and staffs of the university regards highly on the ethical values pertaining to Islamic work ethics. Their values are considered rather homogeneous or similar across different employment status – i.e. students vs staffs.

4.3 Attitudes toward computer use ethics

With the use of scale-based measurement approach, that is similar to Islamic work ethics variable described earlier, similar analysis is also conducted on the dependent variable attitude toward computer use ethics. The use of exploratory factor analysis also indicates the high-factor loadings of all nine items measured with the Cronbach's α value of 0.836. This indicates the high reliability of the items as measurement for attitudes toward computer use ethics. Table III shows the summary result of items measuring attitudes toward computer use ethics.

The lower the mean value, the more strongly the measure represents “unethical” perception of the behavior by the respondents. The overall low mean scores indicated that the majority of the respondents perceived the behaviors in all scenarios as “unethical.” However, mixed result could be found for disruptive behavior, which drives the mean value a bit higher than others. The lowest mean value was found for the scenario of unauthorized use of software.

Attitudes toward computer use measures scenario no.	Mean	Minimum	Maximum	<i>n</i>	SD	Factor loading
1 Responsible use	3.41	1.00	7.00	545	1.80	0.727
2 Responsibility	3.31	1.00	7.00	543	1.68	0.822
3 Acknowledgment	3.24	1.00	7.00	544	1.74	0.768
4 Obtain software	3.69	1.00	7.00	545	1.76	0.530
5 Unauthorised software	3.21	1.00	7.00	545	1.81	0.618
6 Disruptive behavior	4.41	1.00	7.00	540	1.72	0.347
7 Personal non-profit	3.80	1.00	7.00	544	1.62	0.648
8 Personal profit	3.69	1.00	7.00	545	1.67	0.746
9 Company profit	3.90	1.00	7.00	543	1.86	0.831
Overall	3.64					

Table III.
Profile of attitudes toward computer use ethics

Based on the analysis, all measures for individual's value for work ethics and attitudes toward computer use ethics were, respectively, summated into one scale. This entails combining several variables that measure the same concept into a single variable toward increasing the reliability of the measurement (Hair *et al.*, 1998). We checked for normality of the distribution of data for attitudes toward computer use scale and based on the Kolmogorov-Smirnov statistic 0.196 we conclude that normality is assumed.

4.4 Relationship between individual characteristics and attitudes toward computer use ethics

H1 suggests that gender is significantly related to attitudes toward computer use ethics. Therefore, an independent samples *t*-test was performed to investigate whether there is a significant difference between male and female in their attitudes toward computer use ethics. Indeed, the result of the analysis shows that no significant difference can be found between male and female in attitudes toward computer use ($df = 528, p = 0.295$). Therefore, *H1* is not supported.

H2 suggests that individuals' level in organizations is significantly related to attitudes toward computer use ethics. Using an independent samples *t*-test, a significant difference can be found between students and staffs in their attitudes toward computer use ($df = 535, p = 0.000$). The mean scores for staff (mean = 3.28, $SD = 1.22, n = 135$) were significantly lower than the students' (mean = 3.76, $SD = 1.10, n = 402$). This indicates, the staffs have much stronger believe in the unethical behaviors performed by the respective individuals in the scenario. This stronger believe could be translated into less inclination of this group of individuals to perform this types of unethical behavior. Therefore, *H2* in this study is supported.

H3 suggests that with stronger value for Islamic work ethics, an individual would demonstrate stronger unfavorable attitudes toward unethical use of the computers as illustrated in the scenario. A correlation analysis was conducted to investigate this relationship and it was found that the Pearson product-moment correlation coefficient value was -0.139 and the relationship was significant at $p < 0.01$. This correlation also indicates that those with strong values in Islamic work ethics has the tendency to object more to the behaviors illustrated in the scenarios.

Hierarchical multiple regressions were used to assess the ability of two control measures (gender and level in organizational hierarchy) to influence attitudes toward computer use ethics.

Islamic work ethics were entered into Step 1 explaining 1.9 percent variance in attitudes toward computer use ethics. The entry of two control variables (gender and level in organizational hierarchy) in Step 2 resulted in 4.5 percent of total variance accounted for to whole model ($F(3, 546) = 8.606, p < 0.001$). The two control measures (gender and level in organizational hierarchy) explained an additional 2.6 percent of the variance in attitudes toward computer use ethics after controlling for Islamic work ethics. In the final model, only Islamic work ethics and level in organizational hierarchy were statistically significant with level in organizational hierarchy recording a higher β -value ($\beta = -0.163, p < 0.001$) than the Islamic work ethics ($\beta = -0.103, p < 0.001$).

5. Discussion

H1 suggests that gender is significantly related to attitudes toward computer use ethics. In the final analysis, we conclude that *H1* is not supported. The finding

supports the work of Pearson *et al.* (1997), Chow and Choi (2003) and Moores and Chang (2006) but is inconsistent with Banerjee *et al.* (1996), Leonard *et al.* (2004) and McCarthy *et al.* (2005). The evidence affirms that gender continues to provide mixed results in its relationship with attitudes toward ethical decision making. Since gender could be a moderating factor to ethical behavior, the fact that gender is not significant in this academic environment indicates that both male and female staffs and students have similar views and believes pertaining to the behaviors illustrated in the scenarios.

H2 suggests that individuals' level in organizational hierarchy is significantly related to attitudes toward computer use ethics. In this case, the variable refers to the difference between the staffs of the university and the students. While both reside within the same organizations, their roles are different. The final analysis suggests that staffs perceived the behaviors in the scenarios as significantly more "unethical" than did the students. Therefore, we conclude that *H2* is supported. This is consistent with Chow and Choi (2003) but rather inconsistent with Banerjee *et al.* (1996). Indeed, the context of which this research addresses is more relevant to the university environment comparing the different between students and staffs in terms of their values. Such comparison was not made between staffs at different hierarchical level, which past researches such as Chow and Choi (2003) has shown. In analyzing the differences between staffs and students, explanation can be made, which are most likely due to the age factor, the working environment and the religious drive that the university portrays through its mission and vision. The staffs of the university are most likely more mature, undergoing more motivational and spiritual trainings, and the work of which has more enforcement for noble values and virtues. The students, on the other hand, are relatively young and new to the working environment, which the scenario portrays. Many of the students have never been exposed to any induction or motivational courses to understand the concept of ethical and unethical behavior in the work environment involving the use of computers. Therefore, the staffs have the ability to identify quickly and more accurately when certain behaviors are considered unethical in the work environment. The strong values and set of believes also lead to stronger opinion and perception on the observed unethical behavior. These may explain the finding, which shows significant difference between staffs and students in terms of their attitudes and perceptions toward ethical and unethical behaviors.

H3 suggests that Islamic work ethics is significantly related to attitudes toward computer use ethics. The results also suggest that individuals who value work ethics highly, as prescribed by Islamic work ethic values in this research context, would perceive the behavior provided in the scenarios as more "unethical" compared to those who do not. This indicates that those with values, either spiritual or self-embrace good values, are more likely to recognize the unethical behavior when they encounter one and would have stronger opinion or perceptions on the behaviors. These individuals are not only capable of providing strong opinion about certain unethical behavior, they are also possibly less likely to commit to such behaviors. Therefore, it can be concluded that *H3* is supported. The finding also supports Clark and Dawson (1996), Cappel and Windsor (1998) and Dorantes *et al.* (2006) who found strong correlation between ethics and personal values. The result of the study affirms that ethical level increases as individual's value for work ethics grow stronger.

Indeed, it is also important to note that the values used in this study are based on earlier work on religious (Islamic) values (Yousef, 2000, 2001; Ab. Rahman *et al.*, 2006; Ali and Al-Owaihan, 2008; Ali and Al-Kazemi, 2007; Rokhman and Omar, 2008;

Al-Ghamdi, 2010; Shakil, 2011). The indicators were derived from the Islamic principals of ethics that the worshipers are expected to embrace. However, looking at the detail items, one may notice that this set of values may be considered as universal, and can also be made applicable for other good values that any organization would set, for all its employees. Therefore, the insights from this should be considered as highly applicable to any research on personal values on work ethics.

6. Conclusion

Issues of ethics and computers in organizations continue to grow in the literature, as the use of computers is becoming part of routine work life. In the past, although models of attitudes toward computer use ethics were proposed, relatively few had analyzed the characteristics of individuals that are focussed on gender, job position or roles in the organization and religious values on work ethics. The research explores whether attitudes toward computer use relate significantly to individuals' characteristics at the higher learning institution environment in Malaysia, that embrace a religious value as main supporting component of its mission and vision. With the proposed hypotheses, it is found that the difference between staffs and students are significant in terms of attitude toward ethical behaviors and those with high-religious values for work ethics are more likely to have strong opinion toward unethical behavior scenarios investigated.

Methodologically, this research has contributed significantly to new knowledge through the validated and reliable instrument on ethical work values and attitudes toward ethical behavior, and a preliminary understanding of the existence of their relationships. The evidence herein affirms that future research employing students as surrogate for managers in ethics research should be interpreted with caution given the significant difference in ethics evaluations between staff and students. However, we did not find support that could relate attitudes toward computer use with gender. The relationships reported in this study extend previous empirical researches investigating various individual attributes and ethical behaviors.

The research has rendered two practical implications to college educators and employers. Efforts in curriculum design need to emphasize on the importance of ethical education and development of appropriate individual work values pertaining to the rightful use of computers. This is part of the quality needed by the industry, which is to employ graduates with highest level of professionalism and strong ethical values. While this research has only captured specific issues like responsible use, responsibility, etc. students should also be exposed to various other computer use issues in the curriculum. Employers may consider creating the types of training and staff development programmes that enhance the quality of individuals through spiritual and religious values, and provide more awareness programmes that expose them to appropriate use of computers and internet technologies. Inexperienced employees such as the entry level graduates and those with lower formal education level may need more exposure to the training than those who are otherwise.

It is important to note that this study is exploratory in nature and thus subject to limitations, which could be addressed in future research. The sample was selected from a particular university in Malaysia and thus limits generalization of the findings to other organizations. Second, the study was based on a survey. It only captures information at a specific point in time. Future research could be conducted by exploring more of the phenomena through other methodological approach such as qualitative indepth analysis.

Notes

1. www.computerworlduk.com/whitepapers/index.cfm?whitepaperid=5473 (accessed November 30, 2008).
2. <http://downloads.techrepublic.com.com/abstract.aspx?docid=274374> (accessed November 30, 2008).

References

- Ab. Rahman, N.M., Muhamad, N. and Othman, A.S. (2006), "The relationship between Islamic work ethics and organizational commitment: a case analysis", *Malaysian Management Review*, Vol. 41 No. 1, pp. 79-89.
- Ajzen, I. and Fishbein, M. (1980), *Understanding Attitudes and Predicting Social Behavior*, Prentice-Hall, Englewood Cliffs, NJ.
- Akbulut, Y., Uysal, O., Odabasi, H.F. and Kuzu, A. (2008), "Influence of gender, program of study and PC experience on unethical computer using behaviors of Turkish undergraduate students", *Computers & Education*, Vol. 51 No. 2, pp. 1-8.
- Al-A'ali, M. (2008), "Computer ethics for the computer professionals from an Islamic point of view", *Journal of Information, Communication & Ethics in Society*, Vol. 6 No. 1, pp. 28-45.
- Al-Ghamdi, S.M. (2010), "Influence of organisational commitment and Islamic work ethics on attitudes towards organizational change", *Journal for Global Business Advancement*, Vol. 3 No. 3, pp. 257-75.
- Ali, A. (1988), "Scaling and Islamic work ethic", *The Journal of Social Psychology*, Vol. 128 No. 5, pp. 575-83.
- Ali, A. and Al-Kazemi, A. (2007), "Islamic work ethic in Kuwait", *Journal of Management Development*, Vol. 14 No. 2, pp. 366-75.
- Ali, A.J. and Al-Owaihian, A. (2008), "Islamic work ethic: a critical review", *Cross Cultural Management Development*, Vol. 14 No. 6, pp. 5-19.
- Banerjee, D., Jones, T.W. and Cronan, T.P. (1996), "The association of demographic variables and ethical behaviour of information systems personnel", *Industrial Management & Data Systems*, Vol. 96 No. 3, pp. 3-10.
- Bommer, M., Gratto, C., Gravander, J. and Tuttle, M. (1987), "A behavior model of ethical and unethical decision making", *Journal of Business Ethics*, Vol. 6 No. 4, pp. 265-80.
- Brey, P. (2008), "Do we have moral duties towards information objects?", *Ethics and Information Technology*, Vol. 10 Nos 2-3, pp. 109-14.
- Cappel, J.J. and Windsor, J.C. (1998), "A comparative investigation of ethical decision making: information systems professionals versus students", *The Database for Advances in Information Systems*, Vol. 29 No. 2, pp. 20-34.
- Chow, W.S. and Choi, K.Y. (2003), "Identifying managers who need ethics training in using IT at work", *Behavior & Information Technology*, Vol. 22 No. 2, pp. 117-25.
- Clark, J.W. and Dawson, L.E. (1996), "Personal religiousness and ethical judgements: an empirical analysis", *Journal of Business Ethics*, Vol. 15 No. 3, pp. 1359-72.
- Conger, S. and Loch, K.D. (1995), "Ethics and computer use", *Communications of the ACM*, Vol. 38 No. 12, pp. 30-2.
- Dawson, L.M. (1997), "Ethical differences between men and women in the sales profession", *Journal of Business Ethics*, Vol. 16 No. 11, pp. 1143-52.
- Desai, M.S. and von der Embse, T.J. (2008), "Managing electronic information: an ethics perspective", *Information Management and Computer Security*, Vol. 16 No. 1, pp. 20-7.

- Dorantes, C.A., Hewitt, B. and Goles, T. (2006), "Ethical decision-making in an IT context: the roles of personal moral philosophies and moral intensity", *Proceedings of the 39th Hawaii International Conference on Systems Sciences*, pp. 1-10.
- Floridi, L. and Sanders, J.W. (2002), "Mapping the foundationalist debate in computer ethics", *Ethics and Information Technology*, Vol. 4 No. 1, pp. 1-9.
- Foltz, C.B., Cronan, T.P. and Jones, T.W. (2005), "Have you met your organization's computer usage policy?", *Industrial Management & Data Systems*, Vol. 105 No. 2, pp. 137-46.
- Foltz, C.B., Schwager, P.H. and Anderson, J.H. (2008), "Why users (fail to) read computer usage policies", *Industrial Management & Data Systems*, Vol. 108 No. 6, pp. 701-12.
- Ford, R.C. and Richardson, W.D. (1994), "Ethical decision making: a review of the empirical literature", *Journal of Business Ethics*, Vol. 13 No. 3, pp. 205-21.
- Gattiker, U.E. and Kelley, H. (1999), "Morality and computers: attitudes and differences in moral judgments", *Information Systems Research*, Vol. 10 No. 3, pp. 233-54.
- Haines, R. and Leonard, L.N.K. (2007), "Individual characteristics and ethical decision-making in an IT context", *Industrial Management & Data Systems*, Vol. 107 No. 1, pp. 5-20.
- Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998), *Multivariate Data Analysis*, Prentice-Hall, Upper Saddle River, NJ.
- Heron, T.W., Cavico, F., Mujtaba, B.G. and Pellet, P.F. (2007), "Ethics and information technology professionals: an examination of gender, age, career stage, education level and ethics training variables", *Proceedings of the EABR (Business) & ETLC (Teaching) Conference*, pp. 1-13.
- Hill, R.B. and Petty, G.C. (1995), "A new look at selected employability skills: a factor analysis of the occupational work ethic", *Journal of Vocational Education Research*, Vol. 20 No. 4, pp. 59-73.
- Karim, N.S.A., Zamzuri, N.H.A. and Mohamad, Y.N. (2009), "Exploring the Relationship between internet ethics and the big five model of personality", *Computers & Education*, Vol. 53 No. 1, pp. 86-93.
- Kim, K.H. (2003), "A study of the conduct of Korean IT participants in ethical decision-making", in Chung, C.W., Kim, C.-K., Kim, W., Ling, T.-W. and Song, K.-H. (Eds), *Lecture Notes in Computer Science*, Springer-Verlag, Berlin and Heidelberg, pp. 64-74.
- Kreie, J. and Cronan, T.P. (1998), "How men and women view ethics", *Communications of the ACM*, Vol. 41 No. 9, pp. 70-6.
- Lee, J. and Lee, Y. (2002), "A holistic model of computer abuse within organizations", *Information Management and Computer Security*, Vol. 10 No. 2, pp. 57-63.
- Lee, S.M., Lee, S.G. and Yoo, S. (2004), "An integrative model of computer abuse based on social control and general deterrence theories", *Information & Management*, Vol. 41 No. 6, pp. 707-18.
- Leonard, L.N.K., Cronan, T.P. and Kreie, J. (2004), "What influences IT ethical behavior intentions – planned behavior, reasoned action, perceived importance, individual characteristics?", *Information and Management*, Vol. 42 No. 1, pp. 143-58.
- Leonard, L.N.K. and Cronan, T.P. (2005), "Attitude toward ethical behavior in computer use: a shifting model", *Industrial Management & Data Systems*, Vol. 105 No. 9, pp. 1150-71.
- Loch, K.D. and Conger, S. (1996), "Evaluating ethical decision making and computer use", *Communications of the ACM*, Vol. 39 No. 7, pp. 74-83.
- McCarthy, R.V., Halawi, L. and Aronson, J.E. (2005), "Information technology ethics: a research framework", *Issues in Information Systems*, Vol. VI No. 2, pp. 64-8.
- Moor, J.H. (1985), "What is computer ethics?", *Metaphilosophy*, Vol. 16 No. 4, pp. 266-75.

- Moores, T.T. and Chang, J. (2006), "Ethical decision making in software piracy: initial development and test of a four-component model", *MIS Quarterly*, Vol. 30 No. 10, pp. 167-80.
- O'Donnell, B. (2008), "Inappropriate computer use: is your workplace protected?", *Accountancy Ireland*, Vol. 40 No. 4, pp. 56-8.
- Paradice, D.B. (1990), "Ethical attitudes of entry-level MIS personnel", *Information & Management*, Vol. 18 No. 3, pp. 143-51.
- Pearson, J.M., Crosby, L. and Shim, J.P. (1997), "Measuring the importance of ethical behavior criteria", *Communications of the ACM*, Vol. 40 No. 9, pp. 94-100.
- Peterson, D.K. (2002), "Computer ethics: the influence of guidelines and universal moral beliefs", *Information Technology and People*, Vol. 15 No. 4, pp. 346-61.
- Pierce, M.A. and Henry, J.W. (2000), "Judgements about computer ethics: do individual, co-worker and company judgements differ? Do company codes make a difference?", *Journal of Business Ethics*, Vol. 28 No. 4, pp. 307-22.
- Pierson, P.N. and Holmes, G.H. (2005), "Perceptions of work ethic among college seniors: a comparative study", available at: www.collegevalues.org/articles.cfm?gevalues.org/diaries.cfm?a=1&id=603 (accessed December 6, 2008).
- Rokhman, W. (2010), "The effect of Islamic work ethics on work outcomes", *Electronic Journal of Business Ethics and Organization Studies*, Vol. 15 No. 1, pp. 21-7.
- Rokhman, W. and Omar, A. (2008), "The effect of Islamic work ethics on job satisfaction, organizational commitment and turnover intention: a study on Islamic microfinance institutions in Central Java, Indonesia", *Jurnal Bisnis & Manajemen*, Vol. 4 No. 1, pp. 24-34.
- Shakil, M.A. (2011), "Work ethics: an Islamic prospective", *International Journal of Human Sciences*, Vol. 8 No. 1, pp. 850-9.
- Wiant, T.L. (2005), "Information security policy's impact on reporting security incidents", *Computers & Security*, Vol. 24 No. 6, pp. 448-59.
- Wong, K. (1985), "Computer crime-risk management and computer security", *Computers and Security*, Vol. 4 No. 4, pp. 287-95.
- Yousef, D.A. (2000), "Organisational commitment as a mediator of the relationship between Islamic work ethic and attitudes toward organisational change", *Human Relations*, Vol. 53 No. 4, pp. 513-37.
- Yousef, D.A. (2001), "Islamic work ethic: a moderator between organisational commitment and job satisfaction in a cross-cultural context", *Personnel Review*, Vol. 30 No. 2, pp. 152-69.

Further reading

- Loch, K.D., Leonard, L.N.K. and Cronan, T.P. (2005), "Attitude toward ethical behavior in computer use: a shifting model", *Industrial Management & Data Systems*, Vol. 105 No. 9, pp. 1150-71.

Appendix

Responsible use: The company pays for computer time on a large computer. Action: An employee plays games on the system.

Responsibility: A program is written to manage each employee's pension fund allocations. The code was erroneously written so that the stock fund allocations for each person were credited to the bond fund and vice versa. Action: The programmer refused to take monetary responsibility for the mistake.

Acknowledgement: An employee designed a computer application which was the key to a discovery made by the Engineering Division of the company. Action: The Engineering Division was given various awards and recognition with no mention of the program or the programmer.

Obtain software: An employee is given a PC at work but not all of the software needed to do his/her job. Action: The employee copies licensed software from a friend outside of the company to use at work.

Unauthorized use: An employee discovered a way to access all accounts on the company computer system. This flaw in the system security was reported to the appropriate authorities in the company. Action: Until the problem was corrected, the employee continued to "browse" the system.

Disruptive behavior Many workers who use the computer system in the company do not take the time to log out properly. Action: A systems programmer decided to teach the workers a lesson by locking out those who had violated the log out procedure for 24 hours with a message indicating why they were locked out of their accounts.

Personal non-profit: An employee is considering applying for a new job with another company. Action: The employee returns to the office after work and uses a computer with a word-processing package to type a resume.

Personal profit: An employee with access to personnel records is going to ask for a raise. Action: Before meeting with the boss, the employee accesses salary information of others in similar jobs to document his/her case for the raise.

Company profit: While attending a professional conference, an IT professional overheard a private conversation about the development of a top secret user interface being developed by a competing company. Action: The employee used the information in his/her company to gain a competitive advantage.

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2. Hosein Jafarkarimi, Robab Saadatdoost, Alex Tze Hiang Sim, Jee Mei Hee. 2016. Behavioral intention in social networking sites ethical dilemmas: An extended model based on Theory of Planned Behavior. *Computers in Human Behavior* **62**, 545-561. [[Crossref](#)]
3. Han Sung Kim, Ja Mee Kim, Won Gyu Lee. 2014. IE Behavior Intent: A Study on ICT Ethics of College Students in Korea. *The Asia-Pacific Education Researcher* **23**:2, 237-247. [[Crossref](#)]
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