Regional Difference in Ethics Decision Making: A Study of IT Pre-professionals in China

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ABSTRACT
Information and communications technology played a significant role in the recent economic growth of China, which now ranks as the second largest economy in the world. As a result, China faces many social and ethical challenges common to technology-advanced countries. Ethical reasoning and practices are often influenced by cultural expectations and regional norms. The purpose of this study is to investigate ethics decision making by IT professionals in different regions of China. In contrast with many previous studies on comparisons across different countries, this research focuses on intra-country differences.

An IT ethics survey was developed and administered in four regions in China with different degrees of westernization. The data were analyzed using standard cross tabulation and Chi-square test techniques. Preliminary results reveal observable differences among subjects from the four regions with respect to their decision choices, reasons for the choices, the scope of consideration, and the stage of their moral development. In particular, the subject group that was exposed to the strongest western influence showed the highest degree of individualism in ethics decision making.

Keywords
IT ethics, ethics decision making, cultural factors, regional difference, China

INTRODUCTION
Since the second quarter of 2010, China became the second largest economy in the world next to USA (New York Times 2010). According to Bloomberg (2010), China is expected to surpass USA and may become the leader of the world economy by about 2030. Many experts believed that China’s ICT (Information & Communication Technology) industry has been the driving force behind the country’s phenomenal economic growth (Luk’yanenko 2009). As a result of this rapid technological and industrial expansion, China faces many social and ethical challenges common to technology-advanced countries in the West. At the same time, increased participation in global trade creates greater variety of situations that require ethical reasoning and decision making in business and technology contexts. The purpose of this study is to examine how traditional culture and western influence may have affected the way Chinese IT professionals (or pre-professionals) execute ethical reasoning and decision making in IT situations. In contrast with many studies that compared China with other countries, this research focuses on the difference among people from different regions of China that are subject to different degree of Westernization? We seek not only to answer the question what decisions choices are Chinese people making in certain IT ethical dilemmas, but also to answer how and why they make these decisions.

To study the what, how, and why questions, the researchers travelled to four different regions in China: Hong Kong, Guangzhou, Wuhan, and Changshu, to conduct this investigation. It was assumed that the IT pre-professionals in these regions may have different approach to IT ethics decision making because their culture expectation and traditional values may have been affected by the different degrees of Westernization: Hong Kong, having been a British colony for 99 years, is expected to be the most Westernized city among the four, Guangzhou and Changshu are regarded as in the transition regions because of their proximity to the metropolis of Hong Kong and Shanghai respectively, while Wuhan is expected to be the most traditional as it is located in central China with minimal Western influence. The same survey was administered in all four regions to about 950 subjects.

The remainder of this paper will be organized into four sections. The next section provides a brief review of the literatures and the theoretical background. This is followed by a description of the methods used. Next the results and findings will be reported. The paper concludes with a discussion of the findings and their implications for future IT ethics research.

THEORETICAL BACKGROUND
Early studies of IT ethics were conducted within the context of western ethics framework (Lo & Doak 1996; Davison 2000; Hilton 2000). With China, India, and Japan playing increasingly important roles in the global ICT industry, more attention is being paid to IT ethics in Asia. Davison et al. (2006) investigated ethical values of IT professionals in Hong Kong; Davison et al. (2009a) studied the ethics of IT professionals in China; while Davison et al. (2009b) compared the ethics of IT professionals in Japan and China. Patel & Schaefer (2009) investigated the diversity of ethical decision making in India.

There is a clear recognition among scholars that cultural perspectives have a strong influence in shaping ethical positions of IT professionals in different parts of the world (Hongladarom & Ess 2007). Hilton et al. (2006) specifically investigated information systems ethics in developed and developing countries. Other scholars recognized that a developing economy like China is undergoing gradual cultural changes due to effect of globalization. As a result, different parts of the country may be at different stages of cultural transformation. Crawford, & Redfern, (2007) studied the effects of modernization by...
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IT ethics decision making may be analyzed from many different perspectives. In this research we shall focus on three: (a) Normative ethics principles, (b) Scope of consideration, and (c) Stage of psychological development.

The first is related to classical ethics theory. Classical ethicists assume that human are rational being, who make ethics decisions according to normative principles that reflect the decision makers’ value systems. Since the time of the early Greek many different ethics theories had been proposed, e.g. ranging from Aristotelianism, Kantian deontology, and consequentialism (Brown 2001). Because in this research most the subjects that we surveyed did not have formal classical ethics training, rather than using abstract theoretical ethics concepts, we focus in how IT professionals apply ethics principles in practice. Here we make use of the 5-fold classification of ethics principles by the Markkula Center for Applied Ethics (Velasquez et al. 2007): virtue, utilitarian, fundamental rights, fairness, and common good.

The second perspective concerns the scope of consideration of the decision maker. This means whose interests or benefits did the decision maker considered when he/she made that ethics decision choice. Or how wide is the decision maker’s “circle of significant others” with respect to that ethics decision process? Again we use a 5-fold classification: the decision maker him/herself, work team, company to which the decision maker belongs, the local community, and the society at large.

The third perspective is based on the “Stages of Moral Development” proposed by the psychologist Kohlberg (1969). An individual making ethics decisions may be classified into six stages. These six stages exhibit an increasing degree of maturity on the part of the individual, and may be further grouped into three levels:

<table>
<thead>
<tr>
<th>Level 1 – Preconventional Morality</th>
<th>Level 2 – Conventional Morality</th>
<th>Level 3 – Postconventional Morality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1: Obedience and punishment orientation</td>
<td>Stage 3: Good interpersonal relationships orientation</td>
<td>Stage 5: Social contract orientation</td>
</tr>
<tr>
<td>Stage 2: Self-interest orientation</td>
<td>Stage 4: Maintaining authority and social order orientation</td>
<td>Stage 6: Universal principles orientation</td>
</tr>
</tbody>
</table>

Again rather than describing these stages in abstract terms, we have adopted a series of questions to describe the different development stages of the decision maker. Table 1 below provides a summary of the descriptions of these developmental stages in “question form” together with a summary of the classifications in the first and second perspectives.

<table>
<thead>
<tr>
<th>The Three Ethics Perspective</th>
<th>Normative Ethics Principle</th>
<th>Scope of Consideration</th>
<th>Stage of moral development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>• Virtue principle</td>
<td>• Self</td>
<td>• Will I get punished?</td>
</tr>
<tr>
<td></td>
<td>• Utilitarian principle</td>
<td>• Peers</td>
<td>• Will I get any benefits?</td>
</tr>
<tr>
<td></td>
<td>• Basic right principle</td>
<td>• Company</td>
<td>• Will my peers approve?</td>
</tr>
<tr>
<td></td>
<td>• Fairness principle</td>
<td>• Community</td>
<td>• Will the community accept it?</td>
</tr>
<tr>
<td></td>
<td>• Common good principle</td>
<td>• Society</td>
<td>• Will the society benefit from this?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Does it help formulate ethics principles?</td>
</tr>
</tbody>
</table>

Table 1: Taxonomy of Ethics Decision Perspectives

How ethics decisions were made are often affected by the cultural expectations and value systems of the society to which the decision makers belong. Hofstede’s (2005, 2010) delineated six cultural dimensions: PDI power distance, IDV individualism versus collectivism, MAS masculinity versus femininity, AVI risks avoidance, and LTO long term orientation. The actual value for China and Hong Kong are shown in Table 2. We shall attempt to relate our findings with Hofstede’s concepts.

METHODOLOGY

A survey questionnaire was adopted from an earlier version of a similar study by one of the authors (Lo et al. 2011). The questionnaire contains three parts: (a) demographics, (b) questions on what decision choices a subject would take in an IT ethics scenario and the reasons for making that choice, and (c) a similar set of questions on a second IT ethics scenario. The questions in parts (b) and (c) aim to probe the subjects’ reasoning along the three perspectives mentioned above. Scenario 1 involves a choice whether to blow the whistle with respect to certain questionable program coding practices, while Scenario 2 involves a choice on whether to take on an IT project from a client with questionable environmental records. Details of the two scenarios and the survey questions are described in Table 3.1 and Table 3.2 respectively.

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Question</td>
</tr>
<tr>
<td>Suppose you are employed as a programmer in a project team to fix a specific coding problem in a software system for a financial company due to a recent operating systems upgrade. When analyzing the program codes, you accidentally</td>
<td>Suppose you are a project leader working for a software company that help business develop information systems. Your job is not just managing a given project, but also</td>
</tr>
</tbody>
</table>

Table 2: Hofstede’s National Cultural Characteristics – China vs. Hong Kong
The survey was administered in the four regions mentioned above under control conditions. The researchers secured the assistance of colleagues from the Hong Kong Institute of Technology, Jinan University in Guangzhou, Wuhan University of Science and Technology, and Changshu Institute of Technology in the administration of this survey. With the exception of Jinan University where paper surveys were used, all surveys were conducted online using the Qualtrics Survey System. To overcome the language issue, the survey was translated into traditional and simplified Chinese.

The raw data were carefully reviewed. Data values that are obviously wrong or do not make sense were discarded. This yielded 708 usable data sets. The resultant data were analyzed using cross-tabulation and Chi-square tests by SPSS.

Since the purpose of our research is to determine whether there is any difference in ethics decision making for subjects from the four different regions, the independent variable is the “Survey Center”. The dependent variables being measured for the two scenarios are shown in Table 3.2.

### Table 3.1: Scenarios Description

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Explanation (Survey question to which the dependent variable corresponds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethic_1</td>
<td>Ethic_2</td>
<td>Does this scenario depict an ethical issue?</td>
</tr>
<tr>
<td>Choice_1</td>
<td>Choice_2</td>
<td>Which choice of action would you pick?</td>
</tr>
<tr>
<td>Reason_1</td>
<td>Reason_2</td>
<td>What normative principle represents the reason for your choice?</td>
</tr>
<tr>
<td>Scope_1</td>
<td>Scope_2</td>
<td>What is the scope of consideration for your choice?</td>
</tr>
<tr>
<td>Punish_1</td>
<td>Punish_2</td>
<td>How relevant is “Punish-orientation” to your choice?</td>
</tr>
<tr>
<td>For Me_1</td>
<td>For Me_2</td>
<td>How relevant is “self-benefit” to your choice?</td>
</tr>
<tr>
<td>Peers_1</td>
<td>Peers_2</td>
<td>How relevant is “peer approval” to your choice?</td>
</tr>
<tr>
<td>Community_1</td>
<td>Community_2</td>
<td>How relevant is “community order” to your choice?</td>
</tr>
<tr>
<td>Society_1</td>
<td>Society_2</td>
<td>How relevant is “society benefit” to your choice?</td>
</tr>
<tr>
<td>Principle_1</td>
<td>Principle_2</td>
<td>How relevant is “formulation of ethics principle”?</td>
</tr>
</tbody>
</table>

### Table 3.2: Dependent Variables in This Study

The general form of the hypotheses to be tested is:

**H₀**: There is no significant difference in the value of the dependent variables for subjects coming from different survey centers.

### RESULTS

Table 4 summarizes the demographics characteristics of the sample sets from the four survey centers.

<table>
<thead>
<tr>
<th>Sample Size</th>
<th>Hong Kong</th>
<th>Jinan</th>
<th>Wuhan</th>
<th>Changshu</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (M-F)</td>
<td>182</td>
<td>80</td>
<td>254</td>
<td>192</td>
<td>708</td>
</tr>
<tr>
<td>Major (IT-Business-Other)</td>
<td>55% - 45%</td>
<td>43% - 58%</td>
<td>69% - 31%</td>
<td>78% - 22%</td>
<td>65% - 35%</td>
</tr>
<tr>
<td>Age (24 or less-25 or more)</td>
<td>33% - 54%</td>
<td>13% - 13%</td>
<td>98% - 99%</td>
<td>1% - 2%</td>
<td>71% - 25%</td>
</tr>
<tr>
<td>Percentage of People who had work experience</td>
<td>1% - 1%</td>
<td>98% - 5%</td>
<td>99% - 1%</td>
<td>100% - 0%</td>
<td>94% - 6%</td>
</tr>
</tbody>
</table>

### Table 4: Sample Demographics

The Chi-square values of the cross tabulation between the independent variable and dependent variables were examined. Out of the 20 sets of cross tabulation, 11 of the dependent variables showed Chi-square values that are significant different with respect to the region (survey center) variable. Table 5 lists all variable-pairs that show significant differences, p ≤ 0.05. To conserve space, the remaining 9 “non-significant” cases are not shown here.
We now proceed to examine in more details each case where significant differences were observed.

Choice of action: This variable was found to show significant regional difference in both Scenario 1 and in Scenario 2 (p≤ 0.000). A closer examination reveals that the action choices of the Hong Kong subjects are very different (see graph on left) from those subjects in the other three regions in China mainland. The graphs on the right bear out the differences. In Scenario 1, the Chinese (mainland) subjects have a much greater tendency to alert a HIGHER level of management as oppose to Hong Kong subjects. This seems to reflect the greater “power-distance” characteristics of Chinese subjects as reported by Hofstede (2010). In Scenario 2, again the action choices of the Hong Kong subjects are significantly different from those of the Chinese subjects. The graph on the right indicates that a greater percentage of subjects from China would choose to conduct further research and checking before making a decision, reflecting the greater “uncertainty avoidance” characteristics of Chinese subjects compared to Hong Kong (Hofstede 2010).

Graph 1: Centers vs. Choices

Reason for Action Choice: In this question, subjects were asked on which of the normative ethics principle(s) that they base their decision. The reasons given by the Hong Kong subjects are significantly different from those by the Chinese subjects. The two radar charts in Graph 2, show very different profiles for the four regions. The chart on the left is for Scenario 1 and that on the right is or Scenario 2. In Scenario 1, the Chinese subjects regarded “Fundamental rights” as the most important reason for their decision choice, while the Hong Kong subjects regarded “fairness” as the dominant reason. Noting the drive of the Chinese people for democratic reform during the past few decades, this finding is not difficult to understand. On the other hand, in Scenario 2, where an environment issue is involved, utilitarian principle was considered the dominant reason by the Chinese subjects, while the virtue principle was considered the dominant reason by the Hong Kong subjects.

Graph 2: Centers vs. Reasons

Scope of Consideration: Significant regional differences at the 0.05 level were found in Scenario 1 but not in Scenario 2. Graph 3 shows that for subjects from China mainland, the most prevailing scope of consideration is “whether the decision...
Stage of Development: Graph 4 reports the profile of the Kohlberg stages of moral development for subjects coming from the four different regions. The left chart is for Scenario 1, while the right chart is for Scenario 2. The horizontal axis shows the region, while the vertical axis represents the “average” measure of “degree of relevance” attached to that factor by the subjects. A value of 0 was assigned to the “least relevant” option, and a value of 2 was assigned to the “most relevant” option. Thus the higher the numeric value, the more relevant is that stage.

The remarkable result is how similar the two profiles are for Scenario 1 and Scenario 2. Firstly, the Guangzhou (Jinan U) subjects scored low for the two early stages (Punish, ForMe) in the “Preconventional” level, but scored high for the two last stages (Society, Principle) in the “Postconventional” level. While the Hong Kong subjects showed exactly the opposite trends. In fact, the actual value of the “average measure of the degree of relevance” for Hong Kong subjects lies mostly around 0.8 for all stages, but for the Guangzhou subject there was a clear “low” value for the “Preconventional” level, and the clear “high” value for the “Postconventional” level. Thus the “development stage” profiles for Hong Kong and Guangzhou are very different. The second observation we wish to make is, how similar the profiles are for the Changshu subjects and the Wuhan subjects. This is somewhat unexpected because, as argued in the early part this paper, we were expecting Chungshu subjects to be more similar to Guangzhou subjects. Further research is needed to determine whether this observation is statistically real. The third observation to make relates to the overall profiles from the four regions. In this case, the “developmental” profile of the Hong Kong subjects is found to be very different from the profiles shown by the subjects in the other three regions. The similarity of the developmental profiles of the Changshu, Wuhan, and Guangzhou subjects can be clearly seen, but they are very different from that of the Hong Kong.

DISCUSSION AND SUMMARY

Based on the above results, there are clear differences in the way IT ethics decisions are made among subjects from the four different regions of China. For the 20 dependent variables we measured in this investigate, 11 of them showed significant differences (3 at the 0.05 level and 8 at the 0.01 level or beyond). Therefore we can reject the null hypotheses with respect to these 11 variables as indicated in Table 2: action choices (both scenarios), reason for choices (both scenarios), scope of consideration (scenario 1 only), Punish (both scenarios), ForMe (both scenarios), and Society (both scenarios). As pointed out in the previous section, although there are some differences among the China mainland subgroups, most of these significant differences are the result of Hong Kong subjects responded differently than Chinese subjects from the other three mainland regions. Thus it is reasonable to conclude that regional differences do exist with respect to IT ethics decision making. In particular, the Hong Kong subjects showed a very different pattern than the Chinese mainland subjects.

A more interest comparison is to consider the IT ethics decision choice findings in this research to the national cultural characteristics put forward by Hofstede (2005, 2010) in Table 2. There are at least four instances where there appear to be observable correlation:

- In Scenario 1, the Chinese subjects, which have a larger PDI measure, were found to prefer to report to a HIGHER level manager than the immediate supervisor, while the Hong Kong subjects with a lower PDI value, were found to prefer to report to an immediate supervisor.
- In Scenario 1, the Chinese subjects, which have a higher AVI measure, were found to prefer to do more research to find out more about the two companies, before making a decision choice.
In terms of the scope of consideration, the Chinese subjects’ main focus was to consider their own workgroup or peers, while Hong Kong subjects’ focus was on self-benefits and career, or the company. This is consistent with the greater IND score for Hong Kong as compared to China.

The higher IND index for Hong Kong subjects compared to the Chinese subjects was also reflected in the measure on the developmental stages. In this case, the Hong Kong subjects score higher on Preconventional level (reward and punishment orientation), while the Chinese subjects score higher on the Postconventional level (society and principle orientation). The stronger western influence on Hong Kong subjects can be clearly seen.

With the trends an increasing globalized workforce in many companies, the implications of our findings are very relevant for IT managers managing IT projects. In matters relating to IT ethics practices and decision making by IT professionals and pre-professionals, managers not only have to be cognizant of the intercultural differences between people from different countries but also people from different regions of the same country who may have experienced different degree of globalization influences.

Lastly, these preliminary findings provide motivation for future investigations. The next step in our research may involve an exploration into the interaction among more than one dependent variable, and the relationship to other demographics variables. Also the qualitative results from the interviews conducted in the 4 regions will also be analyzed.

REFERENCES


