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ABSTRACT

This study examines differences in individual ethical evaluations of computer-use scenarios between subjects in Hong Kong and the United States in an effort to better understand value differences that may be associated with differences in attitudes toward computer use expectations. Analysis indicates that although Hong Kong subjects generally take a more permissive view of ethical responsibility regarding computer use, they do not necessarily condone violations of ethical behavior. Results are discussed and implications for future research are addressed.

INTRODUCTION

An ongoing dispute over the integrity of copyrights and patents of computer products has characterized trade relations between the United States and a number of Asian countries (most notably the Republic of China). While the willingness of Asian businesses to ignore a variety of U. S. copyright and patent claims may be grounded in a simple profit motive, there may also be underlying cultural differences in the ethical assumptions from which members of Asian and Anglo cultures derive their sense of what constitutes acceptable use of computers and associated software.

A limited body of research indicates that Chinese and U. S. subjects report different ethical perceptions related to software piracy; the research presented here extends the examination of

these differences to include a broad range of computer-use issues. We are hopeful that enriching the ethical context will provide a better understanding of differences in foundation work values, as well as providing more depth to our understanding of values related to business information and information systems.

LITERATURE REVIEW

The Current Trade Environment

A continuing conflict in U.S./China trade has revolved around alleged Chinese violations of copyright law, particularly in the area of computer software (Guth & Uiomoned, 1995; Page, 1995; Kaye, 1995). The scale of the problem is immense, both in terms of direct losses to copyright infringement[1] and the effects of these losses on the stability of the U.S./China trade relationship. In a continuing attempt to bolster the U.S./China trade relationship, China has passed or amended a number of intellectual property laws, but has been unable to avert U.S. charges of copyright infringement (Schrage, 1995; Lulin, 1994).

One outcome of this conflict has been a renewed interest in understanding the differences in fundamental business values between Asian and Western cultures. While the rhetoric of conflict casts aspersions upon parties to the problem (c.f., Lu Ning, 1996; or Tonelson, 1996), research indicates that the conflict may stem less from a profit motive and more from a fundamentally different view of business ethics.

Cultural/Ethical Differences

Wingrove (1995) and Swinyard, Rinne, and Kau (1990) indicate that the intellectual property dispute may be a function of differing cultural expectations about the role of intellectual property in general. Both argue that while westeners regard intellectual property as equivalent to physical property, the same may not be true for the Chinese; to them intellectual creations are part of a "collective" intellectual property which is meant to be copied and shared. Both also point to the Confucian traditions of learning by copying, and copying as a function of social conformity as the antecedents of a different cultural view as to individual ownership of intellectual property.

Swinyard, et al. (1990) examined the issue empirically, and found that Singaporean respondents were significantly more accepting of software copyright violations than were their U. S. counterparts, in spite of the fact that the Singaporeans were significantly more knowledgeable about the requirements of copyright law. They concluded that Chinese traditions of collective ownership and use of intellectual property ideologically conflict with western-based notions of copyright protection.

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[1] In 1993 alone, the U. S. software industry estimates that $351 million was lost to Chinese copyright piracy (Royal, 1995).

Differences in U. S. and Chinese attitudes toward software copyright restrictions are only one of many differences in a variety of other business ethics. McDonald and Zepp (1988) note a number of differences in the way that U. S. and Hong King managers view their responsibility to report legal violations; 77% of U. S. respondents indicated a willingness to report corporate legal violations, while only 50% of Hong Kong managers felt a similar responsibility. This Chinese impulse to support the organization's activity in spite of its ethical position is further supported by Ralston, Giacalone, and Terpstra (1994) who conclude that Hong Kong managers' ethics are more contingent upon context (which includes the organization's survival) than are their U. S. counterparts. The Chinese also view one's responsibility to customers differently than Westeners (in this case, Canadians); Nyaw and Ng (1994) found that Chinese respondents exhibit a significantly more *caveat emptor* attitude toward their customer than did Canadian respondents.

Computer-Use Ethics

Paradice (1990) defined three distinct categories of ethical values related to computer use: Obligation, Opportunity, and Intent. These categories are defined as follows:

1. *Obligation* refers to "one's responsibilities to others" (Paradice, 1990). Obligation is also defined as "something by which a person is bound to do certain things and which arises out of a sense of duty or results from custom, law, etc." (Stein [ed.], 1979). With respect to computer systems we can use obligation to imply one's commitment of computer service or services to another.
2. *Opportunity* refers to "a favorable set of conditions to limit barriers or provide rewards" (Paradice, 1990). It is also "a situation or condition favorable for attainment of a goal" (Stein [ed.], 1979). Illegal or unethical use of systems may be a function of the available opportunities for such actions.
3. *Intent* is defined as "an individual's subjective probability that a behavior will occur, as determined by the individual's attitude toward the behavior" (Paradice, 1990) and "the state of a person's mind that directs his actions toward a specific object" (Stein [ed.], 1979). Favorable or unfavorable perception of computer systems abuse has been closely tied to the intent of the individual at the time of the actions. Accidental actions are viewed more sympathetically than intentional actions.

The ethical evaluations related to these categories are considerably broader than those studied in Swinyard, et al. (1990); intermixed with the problem of software integrity are issues that are dependent on a number of other aspects of the socio/cultural context. We are hopeful that the current research will provide an even richer description of differences between the two cultures. The definition of computer-use ethics we use here embraces a combination of the ethical framework of Swinyard, et al. (1990), Nyaw and Ng (1994), and Ralston, et al. (1994). Since these studies found Chinese or Hong Kong subjects to take a generally more permissive view of a range of business ethical responsibilities, we make the following general hypothesis:

Hong Kong respondents will exhibit significantly more permissive ethical values than will U. S. respondents (e.g., Hong Kong respondents will report that the actions portrayed in the instrument's scenarios are more ethical [or less unethical] than will the U. S. respondents).

METHODOLOGY

Instrument

The instrument used in this study was adapted from Paradice (1990) and originally consisted of 12 computer/software use scenarios and 18 questions about the actions in the scenarios. Two additional scenarios were added to specifically address software piracy and computer virus issues and six additional questions were added for these scenarios.

Subjects were asked to respond to each question on a seven-point, Likert-type scale. Scale choices were (in order) Very Unethical, Unethical, Somewhat Unethical, Questionable, Somewhat Ethical, Ethical, and Very Ethical. Much of the earlier research on cross-national ethics has used similar scales or has used scales that asked subjects to pick a point between two anchor phrases (e.g., acceptable/unacceptable or ethical/unethical). We are concerned that scores which require subjects to select a point between two anchors leaves open the possibility of calibration differences between subjects from different cultures. On an end-anchored scale, U. S. subjects may, for instance, assign a fairly ethical choice a 3 while a Hong Kong respondent assigns it a 2; yet, both subjects might have selected the phrase "somewhat ethical" had that been a choice. Based on this reasoning, we chose to use the seven-point Likert-type scale.

We carefully reviewed the instrument with both Chinese and American students to assure that non-native English-speaking subjects would clearly understand the scenarios and related items. The instrument was carefully examined to find and correct any confusing syntax or idiomatic expressions. The Hong Kong students in this study were all proficient in English, and we believe that this, combined with our text review, obviates most problems of misinterpretation.

Subjects

Subjects are students in business curricula at large universities in Hong Kong (n=98) and the United States (n=256). Since there are students at each university that are not ethnic nationals (i.e., Anglo students in Hong Kong and Asian students in the U.S.), respondents were asked to provide demographic information which allowed the exclusion of non-native data from the sample. The U. S. subjects were equally distributed between the genders at 54% male and 45% female, while the Hong Kong subjects were predominantly female at 27% male and 73% female. The average age of the U. S. subjects was 25.00 (standard deviation of 6.98) versus that of the Hong Kong subjects at 22.33 (standard deviation of 3.82). The academic composition of the U. S. group was 69% Business majors and 31% non-Business majors, while the Hong Kong group consisted of 87% Business majors and 13% non-Business majors.

Procedure

Subjects were given the instrument during classes at their respective universities, and were asked to complete and return them within the next two class sessions. Subjects were given both written and verbal instructions as to how to complete the instrument, and were assured both in writing and verbally that their responses would be completely anonymous. More than 99% of the native subjects returned the form in a usable format.

Analysis

Means and standard deviations were computed for each item within each group. Following this, differences in the between-group mean for each item were tested with an ANOVA. Items are scored on a -3 to 3 scale, with -3 as most unethical and 3 as most ethical; the midpoint "questionable" response was scored as zero (0). Thus, a negative number indicates an "unethical" evaluation and a positive number an "ethical" evaluation.

RESULTS

The results of our analysis are presented in Table 1. Each scenario is presented, followed by the items related to that scenario. To the right of each item is the Mean of the U. S. subjects, the Standard Deviation among the U. S. subjects, the Mean of the Hong Kong subjects, the Standard Deviation of the Hong Kong subjects, and the significance level of the ANOVA for that item. As noted earlier, the Paradice (1990) instrument is not intended to provide construct scales. Following Paradice's original three category structure, we made the following observations of the data.

Obligations

The first set of four scenarios examined issues focusing on obligations, which refer to responsibilities defined by a set of agreements between two parties. The scenarios presented here examined obligations between a variety of programmers and systems users. Hong Kong and U.S. responses were significantly different on all but one item (Item 4) and all shared the same sign (negative for items 1, 3, and 5; positive for item 2).

Opportunity

The next set of scenarios focused on situations addressing opportunity-oriented issues. Opportunity in the context of these scenarios refers to "opportunity to behave in a manner which will be undetected or is immune to retribution" (Paradice, 1990). The individuals in these scenarios are involved in a variety of questionable practices, ranging from 'hacking' or illegally attempting to access systems, to abusing the access privileges awarded to a particular job, or to

simply keeping materials for which they have not paid. The individual responses are compared in Items 6 through 11. All signs were the same and all items showed a significant difference in means, with Hong Kong respondents reporting higher means (indicating a more permissive ethical view).

Intent

The final set of scenarios involve intent to use or misuse computer resources. The characters involved in these acts are participating in questionable activities ranging from software piracy and copyright infringement to virus development. Individual responses are compared in items 12 through 24. Participant responses differ significantly on all but two items (Items 12 and 23), and share similar signs with the exception of Item 15.

Table 1. Ethical Scenarios and Results

	American Universities		Hong Kong University		signif.
	mean	std. dev.	mean	std. dev.	level
Scenario 1 Obligation of Responsible Use: State College charges its demparments for computer time usage. A student had access to the university computer system because a class she was taking required extensive computer usage. The student enjoyed playing games on the computer, and frequently had to request extra computer funds from her professor in order to complete her assignments.					
1. The student's use of the computer to play games was:	-1.731	.950	-.606	1.427	*.000*
Scenario 2 Obligation of Responsibility: An engineer needed a program to perform a series of complicated calculations. She found a computer programmer capable of writing the program, but would only hire the programmer if he agreed to share any liability that may result from an error in the engineer's calculations. The programmer said he would be willing to assume any liability due to a malfunction of the program, but was unwilling to share any liability due to an error in the engineer's calculations.					
2. The programmer's position in this situation is:	1.837	1.456	.596	1.456	*.000*
3. The engineer's position in this situation is:	-.735	1.708	-.214	1.302	*.000*
Scenario 3 Obligation of Acknowledgment: A scientist developed a theory that required construction of a computer model to prove. He hired a computer programmer to build the model, and the theory was shown to be correct. The scientist won several awards for the development of the theory, but he never acknowledged the contribution of the computer programmer.					
4. The scientist's position in this situation was:	-1.098	1.482	-.969	1.550	*.467*

	American Universities		Hong Kong University		signif.
	mean	std. dev.	mean	std. dev.	level
Scenario 4 Obligation to Client: The owner of a small business needed a computer-based accounting system. One day, he identified the various inputs and outputs he felt were required to satisfy his needs. Then he showed his design to a computer programmer and asked the programmer if she could implement such a system. The programmer knew she could implement the system, because she had developed much more sophisticated systems in the past. In fact, she felt this design was rather crude and would soon need several major revisions. But, she didn't say anything about her feelings because the business owner didn't ask her and she thought maybe she could be the one hired to implement the needed revisions later.					
5. The programmers' decision not to point out the design flaws was:	-1.057	1.215	-.455	1.145	*.000*
Scenario 5 Opportunity for Unauthorized Access: A student suspected and found a loophole in the university computer's security system that allowed him access to other student's records. He told the system administrator about the loophole, but continued to access other's records until the problem was corrected two weeks later.					
6. The student's action in searching for the loophole was:	-.220	1.628	-.111	1.696	*.003*
7. The student's action in continuing to access others' records for two weeks was:	-2.160	1.079	-1.949	1.059	*.018*
8. The system administrator's failure to correct the problem sooner was:	-.963	1.375	-.480	1.220	*.019*
Scenario 6 Opportunity to Obtain Software: A computer user called a mail order computer program store to order a particular accounting system. When he received his order, he found out that the store had accidentally sent him a very expensive word processing program as well as the accounting package that he had ordered. He looked at the invoice, and it indicated only that the accounting package had been sent. The user decided to keep the word processing package.					
9. The user's decision to keep the word processing package was:	-1.539	1.288	-.9394	1.202	*.001*
Scenario 7 Opportunity for Disruptive Behavior: A manager of a company that sells computer processing services bought similar services from a competitor. She used her access to the competitor's computer to try to break the security system, identify other customers, and cause the system to "crash" (cause loss of service to others). She used the service for over a year and always paid her bills promptly.					
10. The manager's actions were:	-2.510	.908	-1.647	1.223	*.001*
Scenario 8 Opportunity Due to Privileged Access: A programmer at a bank realized that he had accidentally overdrawn his checking account. He made a small adjustment in the bank's accounting system so that his account would not have an additional service charge assessed. As soon as he made a deposit that made his balance positive again, he corrected the bank's accounting system.					
11. The programmer's modification of the accounting system was:	-1.963	1.178	-1.586	1.363	*.017*

	American Universities		Hong Kong University		signif.
	mean	std. dev.	mean	std. dev.	level
Scenario 9 Intent: Use of Corporate Resource--Non-Profit: A computer programmer enjoyed building small computer systems (programs) to give his friends. He would frequently go to his office on Saturday when no one was working and use his employer's computer to develop systems. He did not hide the fact that he was going into the building; he had to sign a register at a security desk each time he entered.					
12. The programmer's use of the company computer was:	.5714	1.471	.3776	1.374	*.203*
Scenario 10 Intent: Use of Corp. Resources For School: A student enrolled in a Management Information Systems class also was employed at a local business part time. Frequently her homework in the MIS class involved using popular word processing and spreadsheet packages. Occasionally she would work on her homework on the office computer at her part-time job, on her coffee or meal breaks.					
13. The student's use of the company computer was:	1.3143	1.246	.7273	1.331	*.000*
14. If the student would have worked on her homework during "company time" (not during a break), the students use of the company computer would have been:	-1.6531	1.107	-1.061	1.275	*.000*
Scenario 11 Use of Corporate Resources for Profit: A computer programmer built small computer systems (programs) in order to sell them. This was not his main source of income. He worked for a moderately-sized computer vendor. He would frequently go to his office on Saturday when no one was working and use his employer's computer to develop systems. He did not hide the fact that he was going into the building; he had to sign a register at a security desk each time he entered.					
15. The programmer's use of the company computer was:	-.3115	1.620	.0404	1.324	*.01*
Scenario 12 Intent to Keep Copied Software: A student at a university learned to use an expensive spreadsheet program in her accounting class. The student would go to the university microcomputer lab, check out the spreadsheet software, complete her assignment, and return the software. Signs were posted in the lab indicating that copying software was forbidden. One day, she decided to copy the software anyway so she could work her assignments at her apartment.					
16. If the student destroyed her copy of the software at the end of the term, her action in copying the software was:	-1.057	1.494	-.212	1.459	*.000*
17. If the student forgot to destroy her copy of the software at the end of the term, her action in copying the software was:	-1.639	1.207	-.808	1.259	*.000*
18. If the student never intended to destroy her copy of the software at the end of the term, her action in copying the software was:	-2.225	1.029	-1.263	1.426	*.000*

	American Universities		Hong Kong University		signif.
	mean	std. dev.	mean	std. dev.	level
Scenario 14 Intent of Virus Program: A "virus" program is a microcomputer program (typically) that performs tasks that a user has not requested, or does not want to perform. Some virus programs erase all files on a disk, some just print silly messages. One day, a very good student programmer decided to write a virus program. Virus programs always make copies of themselves on other disks automatically, so the virus will spread to unsuspecting users. The student wrote a program that caused the microcomputer to ignore every fifth command entered by a user. The student took his program to the university computing lab and installed it on one of the microcomputers. Before long, the virus spread to hundreds of users.					
22. The student's actions infecting hundreds of users' disks was:	-2.643	.902	-2.152	1.289	*.000*
23. If the virus program output the message "Have a nice day.", then the student's actions infecting hundreds of users' disks would have been:	-1.749	1.493	-1.647	1.304	*.263*
24. If the virus erased files, then the student's action infecting hundreds of users' disks would have been:	-2.753	.826	-2.388	1.061	*.000*

DISCUSSION

It is particularly important to note that Hong Kong and U. S. respondents were in almost complete agreement as to whether or not an action was ethical or unethical; there was only one response in which Hong Kong subjects indicated that an action was ethical when the U. S. subjects indicated that it was unethical. This analysis indicates that, in spite of invective to the contrary, U. S. and Hong Kong respondents share a basic moral agreement of what is ethical and unethical.

What does differ is the *magnitude* of the ethical or unethical evaluation; U. S. respondents always indicate a more unethical evaluation when both groups feel an action was unethical, or conversely, a more ethical evaluation when both sides evaluate an action as ethical. What this indicates is that the Hong Kong respondents are much less extreme in their ethical evaluation, perhaps as a function of their greater sense of ethics as a function of context rather than of dichotomous and absolute right or wrong (Ralston, et al., 1994).

REFERENCES

Guth, R. & Uiomonen, T. (1995). S.O.S. (save our software). *Computerworld, 29*(31), 87-88.

Kaye, L. (1995). Trading rights. *Far Eastern Economic Review, 158*(10), 16.

Lu Ning. (1996, July 25). The cost of nationalism. *Business Times,* 7.

Lulin, G. (1994). Taking a stand. *China Business Review, 21*(6), 9-12.

McDonald, G. M. & Zepp, R. A. (1988). Ethical perceptions of Hong Kong Chinese business managers. *Journal of Business Ethics, 7,* 835-845.

Nyaw, M-K & Ng, I. (1994). A comparative analysis of ethical beliefs: A four country study. *Journal of Business Ethics, 13,* 543-555.

Page, N. (1995, July/August). Counterfeit business. *International Commercial Litigation,* 9-11.

Paradice, D. B. (1990). Ethical attitudes of entry-level MIS personnel. *Information and Management, 18,* 143-151.

Ralston, D. A., Giacalone, R. A., & Terpstra, R. H. (1994). Ethical perceptions of organizational politics: A comparative evaluation of American and Hong Kong managers. *Journal of Business Ethics, 13,* 989-999.

Royal, W. F. (1995). Battling Chinese piracy. *Sales and Marketing Management, 147*(4), 13.

Schrage, M. (1995). The China scam. *Across the Board, 32*(5), 45-46.

Swinyard, W. R., Rinne, H., & Kau, K. A. (1990). The morality of software piracy: A cross-cultural analysis. *Journal of Business Ethics, 9,* 655-664.

Tonelson, A. (1996, May 16). Protecting ourselves. *The New York Times,* A-25.

Wingrove, N. (1995). China traditions oppose war on IP piracy. *Research-Technology Management, 38*(3), 6-7.