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The Ethics of IT Professionals in China

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Ethical integrity is a critical, yet also problematic, component of commercial life. Efforts to maintain ethical integrity are often overwhelmed by desires to make money. For many people, the very notion of business ethics is oxymoronic. In modern information societies, the ethical integrity and accountability of IT professionals is particularly important, given the extensive reliance of individuals as well as organisations and governments on various forms of IT.

Lawrence Kohlberg (1981) undertook some of the most influential research on ethics. He proposed a theory of Cognitive Moral Development (CMD) and developed a six-stage model of ethical reasoning. The six stages of Kohlberg's model are: (1) obey to avoid punishment; (2) comply for immediate self-interests; (3) observe mutual interpersonal expectations and relationships; (4) abide by established laws and rules; (5) conform to the principles and spirit of a socially established system for law and order; (6) uphold principles of rights and justice.

Kohlberg's work is widely respected and used, but it has also attracted some criticism, due partly to its overarching focus on 'justice' and exclusive reliance on Western philosophy. Significantly, Chinese philosophies concerning individual rights, duties, ethics, equality and freedom are "compatible with ... the subordination of the individual to society and state" (Lau and Kuan, 1988). The idea "that there are universal norms applicable to all irrespective of conditions ... [is] ... more or less anathema to traditional Chinese" (ibid.).

Snarey (1985) reviewed 45 studies carried out in 27 countries and concluded that while the first three or perhaps four stages of Kohlberg's model are universal, the latter two or three may differ from one group to another. Remarkably, Snell (1999) found that Chinese employees were very likely to obey requests from their boss to do something unethical either in order to fulfil contractual obligations, and thereby avoid punishment (stage 1) while serving their own interests (stage 2), or in order to fulfil interpersonal obligations (stage 3). The fundamental role of personal relationships and obligations in mainland China in lieu of an underdeveloped legal system reinforces this tendency. Thus, the Chinese may rely upon relationship-based solutions to ethical issues (stage 3) in the absence of well-established laws and rules that they could abide by (stage 4) or to which they could conform (stage 5).

This paper reports on a study that applied Kohlberg's model to investigate the ethical values of IT professionals located in the People's Republic of China (China). China should be of great interest to international managers and policy makers, given its fast growing economy in the world [GDP growth has averaged 9% annually since the early 1980s] and its recent accession to the World Trade Organisation. Indeed, China is likely to exert considerable impact on world economic trends in the future. The current IT-driven transformation of Chinese business and society (Martinsons, 2005) is stimulating huge demand for new IT

applications. In order to develop and implement these applications quickly, there is a considerable temptation to cut corners and compromise standards, including ethical ones.

Consequently, it was important to understand how IT professionals in China perceive ethical issues. To study this topic empirically, we developed an instrument that incorporates all six stages in Kohlberg's model and an additional stage zero – modeled as being entirely devoid of ethical reasoning. Our instrument includes 13 scenarios that cover a range of issues relevant to the IT profession, such as: the inevitability of bugs in software; how mistakes are handled in professional work; relationships with customers; the use of power; trust; motivation; and duty to the IT profession. Our respondents were asked to rank the likelihood of performing seven alternative actions for each of the 13 scenarios. The complete survey instrument is available from the authors.

For illustrative purposes, scenario 12 (Duty to the IT Profession) and the available alternatives, corresponding to the 7 stages (0 to 6) follows:

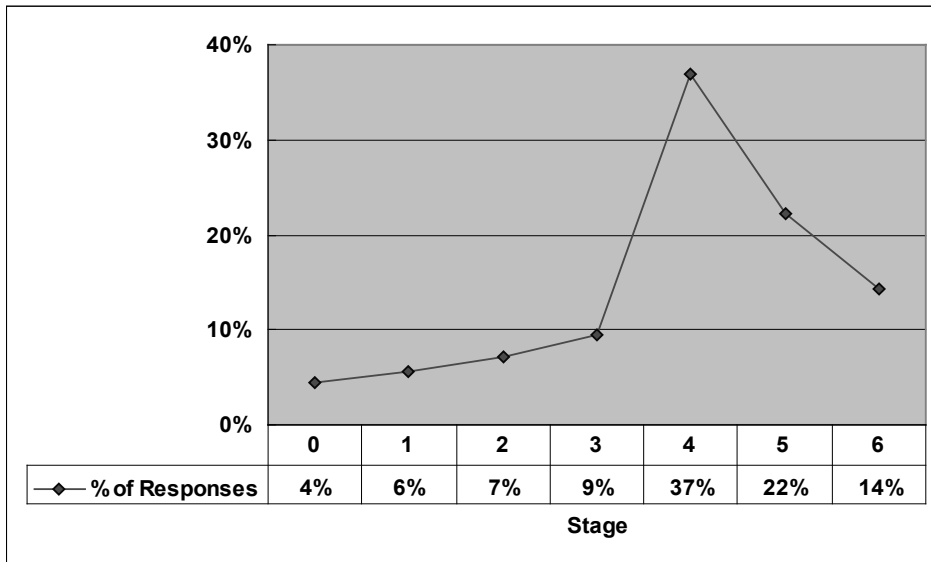
“You believe that as an IT Professional, you should ... ”

- (0) do whatever you like irrespective of other people;
- (1) do your best, but not worry if your work is imperfect;
- (2) cut corners in order to get a job done in a way that maximises your personal benefit;
- (3) fulfil the minimum requirements of a job;
- (4) promote good practice and high standards in your work;
- (5) help to develop new standards for professional work;
- (6) constructively challenge the fundamental values that the IT profession holds as important.

We implemented the survey (in Chinese and English) on a website at a university in Hong Kong. We then contracted the China Centre for Information Industry Development (CCIID) to email an invitation to participate in the survey to 5,000 randomly selected IT professionals out of the 1.2 million members in their membership database. Of these 5,000 individuals, 290 (5.8%) submitted valid responses. Demographically, the vast majority of respondents are well-educated (87% have a Bachelor's degree or higher), young (68% are below 30), predominantly male (79%), and have less than 10 years of working experience (86%). Only 33% identify themselves as being of managerial level or above while 14% are engineers. A further 20% occupy other positions typically associated with the IT profession, such as analysts, programmers, network and security specialists. In addition, 45% work in Computing and IT Services and 17% in Communications and Media. These statistics are consistent with the profile of CCID's members, 90% of whom work directly in the IT field.

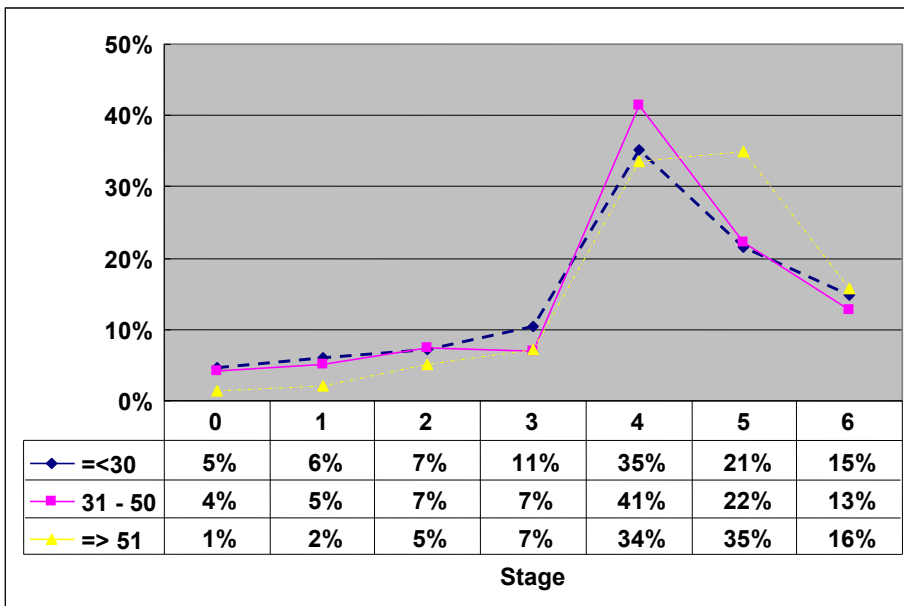
When the responses of respondents are analysed across all thirteen questions, it is clear that Stage 4 is the most popular (37%) and that 73% of responses are at Stage 4 reasoning or above (see Figure 1).

Figure 1: Summative Responses By Stage



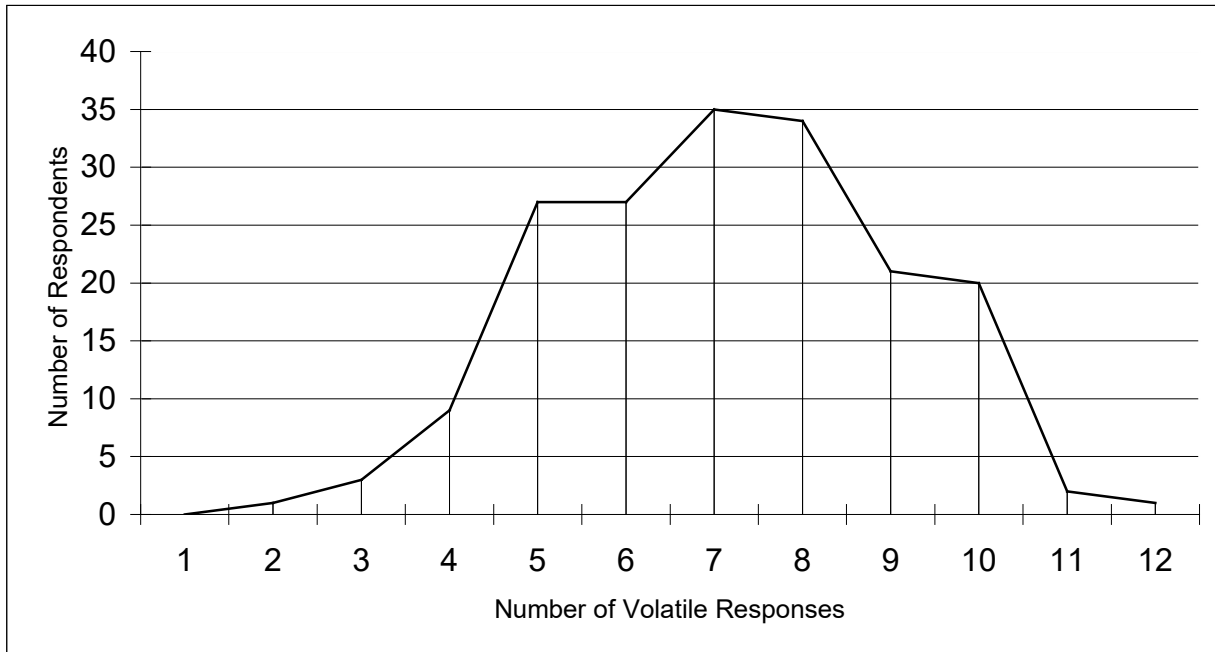
When this data is analysed by age (see Figure 2), the same overall pattern can be observed, but older individuals clearly express a preference for stage 4 and 5 reasoning. This may be explained in part by their maturity, and also by the fact that they grew up in the early, more idealistic years of the new China (i.e. post 1949), before the ravages of the cultural revolution (1966-1976) and the economic boom times of the mid-1980s onwards.

Figure 2: The Impact of Age on Ethical Reasoning



For each scenario, respondents were asked to indicate not only their most likely choice of action, but also their second most likely choice of action. The choice-shift that is indicated can be analysed using what Snell et al. (1997) term volatility analysis, i.e. the extent to which an individual may be governed by reasoning at different stages. Volatility is identified when the first choice and the second choice are separated by at least two stages, e.g. the first choice is stage 4 and the second choice is stage 0, 1, 2 or 6.

Figure 3: Volatility Levels per Respondent



If we consider the responses of all 180 respondents who provided both a first choice and a second choice for all thirteen scenarios, we can see that no respondent exhibited zero volatility. In fact, the lowest level of volatility involved two scenarios (one respondent), whereas at the high end, one respondent exhibited volatility on twelve of the thirteen scenarios (see Figure 3).

The data analysed above indicates that Kohlberg's model is generally supported in the context of IT professionals in China. Significantly, stage 4 was found to be the most commonly-adopted stage of ethical reasoning, with 73% of responses achieving reasoning at the level of stage 4 or above. This represents the key finding from our study and leads us to conclude that, consistent with the principle of cultural convergence, the ethical reasoning of IT professionals in China is based primarily upon an international (if not universal) set of 'IT professional' norms rather than on Confucian-derived, relationship-based ideals.

Nevertheless, it is notable that older respondents tended to reason at a higher stage than younger respondents. Older workers are expected to be more familiar with the negative consequences of unethical actions, and thus could be more likely to choose actions associated with the higher stages of ethical reasoning.

Our data from China indicates a good degree of fit with Kohlberg's theory and the gradually evolving principles of Chinese management (Martinsons and Hempel, 1995). Indeed, Ip (2002) documents employee and management practices in a Chinese-owned and managed company that are remarkably consistent with the higher stages of CMD theory, suggesting that the moral reasoning implicit in the theory is not so alien to the Chinese context at all.

Individuals who choose to reason at Stage 0 are likely to be of particular concern to organisations, since they appear to make decisions without any moral or social foundation, acting entirely according to impulse. Of additional concern to organisations will be the ethical confusion surrounding a small number of items, most notably the inevitability of bugs in software, where stage 2 (bug-free software is possible to achieve, but too expensive) is the most popular (18% of responses), and where 48% of responses are at stages 0-2 (all software has bugs and it doesn't matter or we can't do anything about it), compared to only 43% at

stages 4-6. The issue of bugs is also one where volatility is high: respondents appear to be confused, with 42% of responses indicating a positive shift, and 38% a negative one. This confusion might indicate a breakdown in Confucian traditions with the rise of new political and economic values (cf. Martinsons and Hempel, 1995).

Nevertheless, the picture is by no means entirely bleak. Not only do most individuals attain stage 4 or above reasoning, but of those who do so as their first choice, 72%-83% have a second choice that is either not volatile at all, is higher, or if lower, is still within the 'stage 4 and above' group. This suggests that most IT professionals have a reasonably well developed sense of ethical reasoning on most topics.

For organisations doing business in China, this research has three key implications. Firstly, that Kohlberg's CMD theory is valid in the Chinese context: most IT employees and managers can be expected to reason at levels similar to those of their international counterparts. Nevertheless, on specific issues such as the inevitability of bugs in software, and the associated accountability for those bugs, the picture is less clear, suggesting the need for additional attention. Secondly, a small minority of Chinese IT professionals do not appear to have a well developed sense of ethical reasoning: they tend to be amoral and make impulsive decisions. Thirdly, all IT professionals, including those in China, are likely to exhibit some volatility in their ethical reasoning. The latter two implications suggest the need to implement organisation-wide programmes to increase the awareness and understanding of ethics.

REFERENCES

- Ip, P.K.(2002) The Weizhi Group of Xian: A Chinese Virtuous Corporation, *Journal of Business Ethics* 35(1), 15-26.
- Kohlberg, L. (1981) *Essays on Moral Development, Volume One: The Philosophy of Moral Development*, Harper and Row, San Francisco.
- Lau, S.K. and Kuan, H.C. (1988) *The Ethos of the Hong Kong Chinese*, Chinese University Press, Hong Kong.
- Martinsons, M.G. (2005) Transforming China, *Communications of the ACM* 48(4) 44-48.
- Martinsons, M.G. and Hempel, P.S. (1995). Chinese Management Systems: Historical and Cross-Cultural Perspectives, *Journal of Management Systems* 7(1), 1-11.
- Snarey, J.R. (1985) Cross-Cultural Universality of Social-Moral Development: A Critical Review of Kohlbergian Research, *Psychological Bulletin* 97, 202-232.
- Snell, R.S. (1999) Obedience to Authority and Ethical Dilemmas in Hong Kong Companies, *Business Ethics Quarterly* 9(3), 507-526.
- Snell, R.S., Taylor, K.F. and Chak, A.M.K. (1997) Ethical Dilemmas and Ethical Reasoning: A Study in Hong Kong, *Human Resource Management Journal* 7(3), 19-30.

SURVEY INSTRUMENT FOR CACM 52-7

NB: In this document, the items in each scenario are presented in stage sequence. In the original survey design, a random sequence was used.

1. HOW INFORMATION IS USED – If you discover some confidential information on the Internet that may damage the organisation, you...

- use it however you feel like (0)
- pretend you know nothing about it & avoid getting involved (1)
- use the information for personal advantage (2)
- gossip about it with your friends/colleagues (3)
- report it through proper channels (4)
- ask whether shared values & principles have been violated (5)
- initiate discussion about whether the organisation has a right to confidentiality (6)

2. HOW MISTAKES ARE HANDLED - When you make a serious mistake in your work, you will...

- ignore it and keep going (0)
- try to pin the blame on someone who is weaker (1)
- try to pin the blame on a rival or competitor (2)
- only let your close friends know about it (3)
- subject yourself to formal review procedures (4)
- admit it & seek to eliminate harm to your organisation (5)
- report & use the experience as a lesson for others (6)

3. HOW OPINION IS EXPRESSED - When you are asked for your views on what should be done, you...

- say whatever you feel like at the time (0)
- are frightened to say anything (1)
- say whatever will benefit you most (2)
- say the same thing as your colleagues (3)
- offer your expert advice (4)
- emphasise the organisation's social responsibilities (5)
- actively join in a discussion until everyone else is questioning what the organisation ought to be doing (6)

4. HOW DISAGREEMENTS ARE HANDLED - When a disagreement occurs between co-workers, you...

- do whatever you feel like at the time (0)
- are afraid to get involved (1)
- support the side that will offer you the most personal benefits in return (2)
- discuss the disagreement with your friends (3)
- resolve the disagreement by following correct organisational procedures (4)
- remind others of the organisation's social obligations (5)
- collaborate with one another to work out what is morally right (6)

5. HOW REWARDS ARE OBTAINED - You reward the people who...
- do whatever they like (0)
 - obey orders or instructions without thinking (1)
 - stand up for their own interests (2)
 - know how to please the people around them (3)
 - interpret rules and procedures in a professional manner (4)
 - want to make the world a better place (5)
 - are concerned with spiritual purpose and values (6)
6. RELATIONSHIPS WITH CUSTOMERS - You give most priority to those customers who...
- you feel like at the time (0)
 - could cause damage if not satisfied (1)
 - are financially most important (2)
 - are of sufficiently high status (3)
 - appreciate orderly, professional service (4)
 - are in the greatest genuine need (5)
 - respect the ethical purposes of the organisation (6)
7. THE IMPACT OF THE ORGANISATION ON EMPLOYEES - Through working in this organisation, you have learned to...
- do whatever you feel like (0)
 - do as you are told (1)
 - look after your own self-interest (2)
 - fit in with others (3)
 - adopt a disciplined and orderly approach to solving problems (4)
 - take socially responsible actions (5)
 - strengthen your own ethical principles by constant self-questioning (6)
8. THE USE OF POWER - You use power...
- to do whatever you feel like (0)
 - to control others (1)
 - for your own benefit (2)
 - to help your friends (3)
 - to maintain stability and order (4)
 - to ensure that ethical principles are respected (5)
 - to encourage reflection on the organisation's fundamental values (6)
9. WHY RULES, REGULATIONS AND CODES ARE FOLLOWED - You obey the rules, regulations and codes...
- by chance, not by intention (0)
 - because you are frightened of punishment (1)
 - if you can gain some personal advantage (2)
 - only when your colleagues also obey (3)
 - because you want an orderly and smooth operation (4)
 - to promote justice and the common good (5)
 - if these are based on thoroughly-examined & justifiable rationale (6)

10. TRUST LEVELS AMONG COLLEAGUES – In your organisation you trust...

- anyone you feel like (0)
- no one (1)
- those who owe you a favour (2)
- your friends & close colleagues (3)
- specialists & experts (4)
- others' integrity & sense of justice (5)
- everyone's carefully considered opinion or concern (6)

11. WHAT MOTIVATES PEOPLE - In this organisation, you are motivated by...

- whatever you feel like at any given time (0)
- the need to avoid punishment (1)
- the promise of benefits & rewards (2)
- the support & acceptance of your colleagues (3)
- professional responsibility (4)
- concern for the common good (5)
- a need to resolve moral conflicts (6)

12. DUTY TO THE IT PROFESSION – You believe that as an IT professional, you should...

- do whatever you like irrespective of other people (0)
- do your best, but not worry if your work is imperfect (1)
- cut corners in order to get a job done in a way that maximises your personal benefit. (2)
- fulfil the minimum requirements of a job. (3)
- promote good practice and high standards in your work (4)
- help to develop new standards for professional work (5)
- constructively challenge the fundamental values of the IT profession. (6)

13. THE INEVITABILITY OF BUGS – As an IT professional, you believe that...

- all software has bugs and it doesn't matter (0)
- all software has bugs, which is not a good thing, but we can't do anything about it (1)
- bug-free software is possible to achieve, but too expensive (2)
- bug-free software can be produced if everyone tries their very best to achieve it (3)
- the delivery of bug-free software is an essential responsibility of a high-quality software developer (4)
- all software developers have an ethical obligation to deliver 100% bug-free software (5)
- the existence of bugs in software is a matter for philosophical debate (6)