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An exploration of differences in judgements of computer ethical behavior by sex, education, age, and other demographic factors

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ABSTRACT

When faced with an ambiguous ethical situation related to information technology (IT), the individual's course of action is influenced by personal experiences, consideration of what co-workers would do in the same situation, and an expectation of what the company would sanction. In this article, the approval/disapproval ratings of over three-hundred Association of Information Technology Professionals (AITP) members concerning the actions taken in a series of IT ethical scenarios are evaluated. Respondents expressed their personal opinion, as well as their perception of their co-workers' opinion, and their understanding of the company's opinion of the actions relating to IT described in the scenarios. Differences in responses by sex, education, age, years in the profession, years with current employer, job of respondent, and type of industry of respondent are explored.

INTRODUCTION

In identical situations, different individuals make different ethical decisions related to the use of computers and computer technology. In the general business setting, patterns of ethical differences between men and women (Dawson, 1997), experienced and inexperienced employees (Forelich & Kottke, 1991) and other differences based upon demographic factors were found to be significant. Conversely, other studies of the same factors found no differences. However, these differences have not been studied among Information Technology (IT) professionals; therefore, in this article, patterns of difference by sex, education, age, years in the profession, years with current employer, job of respondent, and type of industry of respondent are examined for IT professionals using scenarios involving computer-related situations. The approval/disapproval

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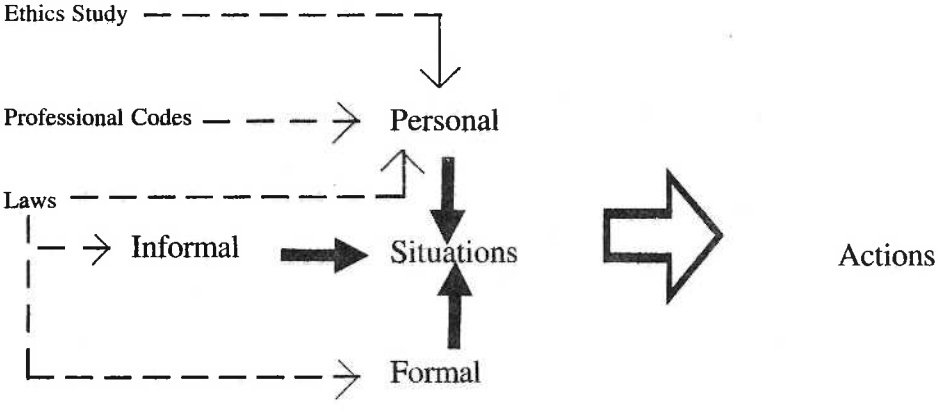
ratings of over three hundred Association of Information Technology Professionals (AITP) members concerning the actions taken in a series of IT ethical scenarios are evaluated. In reaction to a scenario, respondents expressed a personal approval/disapproval rating, their perception of their co-workers' rating, and their estimate of the company's rating of the actions, and an estimate of likely punitive measures. The analyses focus upon differences in these responses by various demographic factors. The patterns are explored in order to refine an existing computer ethics model of ethical decision-making.

THE RESEARCH MODEL

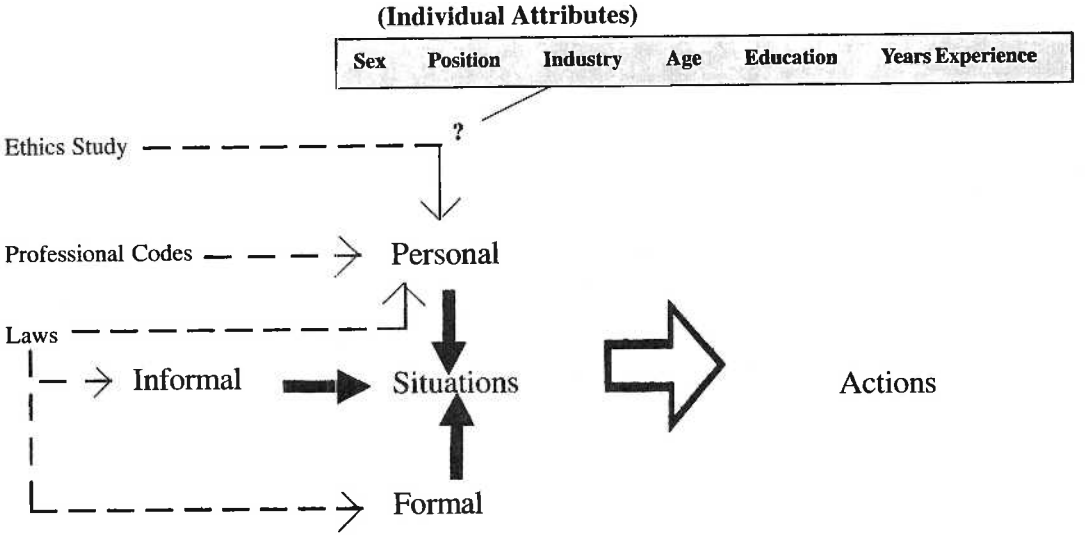
Unfortunately, not all IT ethical dilemmas that arise are covered by company or professional codes of ethics, and, even in those situations addressed by existing codes, the action which should be taken is not always clear. Thus, personal codes of ethics as well as the expectations of co-workers and superiors are taken into account as employees make ethical decisions. For an individual it is especially difficult to decide what to do if peers expect one action, corporate management another action, and one's personal beliefs or experiences call for yet another course of action. This ethical ambivalence may be characterized as role conflict (Froelich & Kottke, 1991). In the face of such conflict, the question becomes, "Which action will be taken and what influences this action?"

Figure 1. Computer Ethics Decision-making Model (Henry & Pierce, 1994)



The current research is structured around the model shown in Figure 1 (Henry & Pierce, 1994). The primary influences affecting ethical decisions shown in the model are the individual's personal code of ethics, the informal code of ethics that exists in the work place, and formal code or company policy. For a given individual, these factors often exert distinct influences on the decision-making process (Pierce & Henry, 1998). Research on the model found that the formal company codes (Pierce & Henry, 1998) and professional IT codes (Pierce & Henry, 1997) were significant factors influencing decisions in the IT context. In another framework of IT ethical decision-making, Raghunathan and Saftner (1995) included "individual attributes," defined more precisely to be demographic variables such as sex, gender, student status, and work experience. The current research explores these individual attributes which have been added as mediating factors in the model as shown in Figure 2.

Figure 2. Revised Computer Ethics Decision-making Model



ETHICAL DECISIONS AND DEMOGRAPHICS FACTORS

Sex

Gilligan's research (1982, 1987) suggests that men consider ethical situations in terms of rules, codes, and rights while women consider these situations in terms of relationships. In a number of studies women were found to take more ethical positions than men (Arlow, 1991; Betz & O'Connell, 1989; Borkowski & Ugras, 1992; Ruegger & King, 1992). Dawson (1997) in her review of research related to ethical differences in men and women suggests that the context is the basis of the differences; she calls this a "situational theory." Dawson categorizes scenarios as "relational" (related to interests of others) or "non-relational" (situations one's self)." (1997, p. 1146) In a study of salespersons, she found definitive patterns between women and men in ratings of relational scenarios and no difference in non-relational scenarios.

On the other hand, other researchers suggest that the ethical frameworks used in a general business setting by men and women do not differ. Schminke and Ambrose (1997) found marginal gender differences in the ethical models used for business situations. Although, women tended to use a broader range of models than men, the findings were not those consistent with the theories of Gilligan. Other researchers, however, including McNichols and Zimmerer (1985) and Stanga and Turpen (1991), found no gender differences in judgements of ethicality of actions.

Loch and Conger (1996) suggest that gender may be important to decision making in ethical situations involving IT. They reason that since computer use is gender-biased, there is evidence that related ethical intention formation might also show differences. Indeed their application of the "Theory of Reasoned Action" model to ethical decision-making revealed differences between women and men. Women used social norms to determine behavioral intent while men used primarily their attitude toward computing acts (Loch & Conger, 1996, p. 82).

Position in the Company

Position of an individual in company is defined for the purpose of this study as the "job description" chosen from the following list: Senior Management, Middle Management, Programmer, Analyst, Software Engineer, System Supervisor, Data Processing Manager, CS/MIS Educator, Other. In the case of some of these titles, they reflect the position of the person in the leadership hierarchy of an organization (e.g., senior management, middle management). In other cases such as CS/IS educator, programmer, etc., different jobs are described. A study of differences in judgement of ethical actions is interesting in both cases. Organizational leaders convey and set the tone for the organizational ethical climate (Gottlieb & Sanzgiri, 1996). In a comparison of CS/IS educators and other practicing CS/IS professionals by Pierce and Henry (1994b; 1996a), educators were found to differ from other CS/IS professionals in their preferred basis for ethical decisions (Personal, Informal, Formal) as well as the types of decisions they make.

Age and Years of Experience

In addition to ethical differences between men and women, Dawson (1997) also found

evidence that ethical standards become higher with age and experience. This is in contrast with the notion that individuals enter business with high ideals and become disillusioned, cynical, and less ethical in their business practices. Using a scale for identifying individual ethics beliefs, Forelich and Kottke (1991) found a correlation between the scale and years of experience as well as between the scale and age. In this same study, no differences in the scale were found by sex.

Conclusions of other investigations of the relationship between age and ethical perception seem to have no clear pattern. Callan (1992) found no significant differences. Serwinek (1992) found employees over 40 differed significantly from those 40 and under on two of the four scales used, and Deshpande (1997) reported that workers over 40 differed from those 40 and younger on five of the 17 scenarios. In the studies reporting differences, the older respondents had stricter interpretations of ethical standards.

Education

Field based research related to ethical indices and level of education shows mixed results. Browning and Zabriskie (1983) found that individuals with less education judged taking gifts and favors as less ethical than those with more education. However, other researchers such as Serwinek (1992) found that there was no relationship between education level and various ethical indices. In contrast, Rest and Thoma (1985) found level of education to be positively related to level of moral reasoning.

RESEARCH STRATEGY

The research described in this article is based on the model shown in Figure 2 and is designed to examine response differences in ethical rating of scenarios by levels of the following demographic variables: Sex, Position in the Company, Industry Type, Age, Number of Years in the Profession, Number of Years Working for the Current Employer, and Education.

The Questionnaire Approach

Most previous work such as Paradice and Dejoie (1991) has been done with undergraduate and graduate student groups or with MIS faculty or identified experts (Parker, 1979, 1981) and does not reflect the larger community of computer professionals. In this study computer professionals were surveyed. A survey approach was taken in order to obtain information from a number of different IT professionals across organizations, thus obtaining more generalizable results. Using the work of Paradice (1990), a questionnaire was designed to test the research questions.

Consistent with ethics research (Fritzsche & Becker, 1984; Grover, 1993; Straub & Nance, 1990) which resulted in useful data, a mail survey containing scenarios involving computer-related behavior was used to elicit ethical judgements from respondents. Trevino (1992) states in her discussion of methods for studying ethical/unethical behavior in organizations that "Scenarios may be extremely useful vehicles for understanding subjects' judgements in hypothetical ethical decision situations" (Trevino, 1992, p. 128).

Questionnaire Items

To test the research questions, the authors developed a questionnaire containing IT ethical scenarios. Each scenario presented an ethical situation related to IT and the action taken by an employee or department. The nine scenarios suggested by Paradice (1990) and shown in Table 1 were used in the study; three scenarios relate to obligation, three to opportunity, and three to intent. Paradice (1990) defined these terms as follows: an *obligation* is a responsibility to others; an *opportunity* is a set of favorable conditions with at least limited barriers and perhaps even rewards; and an *intent* is a reason or motive for action. Intent, in the context of use of IT resources, relates to personal profit, personal nonprofit, or company profit. The categories, obligation, opportunity, and intent, were selected because they have been identified in previous studies as significant variables which determine individual behavior (Johnson, 1985; Parker, 1981; Paradice, 1990) and represent a variety of ethical situations found in the IT workplace.

Table 1. Scenarios Used in the Study

Type of Scenario		Scenario
Obligation	Responsible Use (non-relational)	The company pays for computer time on a large computer. Action: An employee plays games on the system.
	Responsibility (relational)	A program is written to manage each employee's pension fund allocations. The code was erroneously written so that the stock fund allocation for each person was credited to the bond fund and vice versa. Action: the programmer refused to take monetary responsibility for the mistake.
	Acknowledgement (relational)	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.
Opportunity	Obtain Software (relational)	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 (non-relational)	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 (relational)	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.
Use of Resources	Personal Non-Profit (non-relational)	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 (non-relational)	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 (relational)	While attending a professional conference, a DP 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.

In addition to the above categorization of the scenarios, each scenario is categorized as "relational" (involving the interests of others) or "non-relational" (not involving others, confined to one's own conscience) (Dawson, 1997, p. 1146). Thus, the theory that the basis of differences between ethical responses of women and men is examined.

The following illustrates the format used for all scenarios and responses:

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

	strongly approve				strongly disapprove
Your opinion:	1	2	3	4	5
The opinion of co-workers:	1	2	3	4	5
The company position:	1	2	3	4	5

Company Response: 1) no action 2) demotion 3) censure/reprimand
4) fine 5) suspension 6) fire

Respondents reacted to the action taken in the scenario on a five-point Likert-type scale (1932) from strongly approve to strongly disapprove. Besides their own response to the action, respondents assessed their perceptions of the reactions of their co-workers and were asked to predict the company's reaction. To avoid biasing responses, the categorizations of the scenarios were not delineated on the questionnaire. In addition, respondents were asked to indicate the most likely official company response to the action from a list of choices ordered from least severe (1-no action) to most severe (6-fire the employee).

Demographic information including age in years, gender, level of education, position, years in the profession, and years with the current employer was requested. Level of education was limited to the following categories: High School, 2-Year College, 4-Year College, Master's, Doctorate. Respondents categorized themselves by position as follows: Senior Management, Middle Management, Programmer, Analyst, Software Engineer, System Supervisor, Data Processing Manager, CS/MIS Educator, Other. The categories for industry type were: Manufacturing, Government, Education, Finance, Utilities, Service, Consulting, Wholesale/Retail, Other.

Source of Data

While it might be interesting to look at all computer users, computer professionals across industries and company positions were appropriate for this study since these professionals are generally exposed to ethical questions and decisions (Straub & Nance, 1990; Paradice, 1990). The authors explored ways of accessing a representative sample of this group and used members of the Association of Information Technology Professionals (AITP). The members of AITP have proved to provide a relevant sample in previous research that examined computer abuse (Straub & Nance, 1990). Indeed the mailing list used for the current study was stratified by industry (these are categories listed as industry type on the questionnaire and used in the analysis of data). This cross-organizational sample may reveal differences across industries as well as positions within organizations, age, and other demographic categories.

Data Analysis Techniques

The analysis of data was done using the *Statistical Package for the Social Sciences* (1990). The statistical procedures used were as follows according to the demographic measure under consideration:

- Sex (two-tailed t-tests)
- Position in the company (One Way Analysis of Variance)
- Company (industry) type (One Way Analysis of Variance)
- Age (Regression analysis, Pearson's Correlation Coefficient)
- Number of years in the profession (Regression Analysis, Pearson's Correlation Coefficient)
- Number of years working for the current employer (Regression Analysis, Pearson's Correlation Coefficient)
- Education (One Way Analysis of Variance)

Post-hoc Student-Newman-Keuls tests were used to identify specific pairs of differences in cases where the ANOVA indicated significant differences.

To obtain the data, a cover letter, the questionnaire, and a metered return envelope were mailed to a random sample of 2551 AITP members. A return rate of approximately 14% yielded 356 responses. Since all questions on some questionnaires were not completed, parts of the analyses were done with fewer responses.

RESULTS AND DISCUSSION

Scenarios presented to respondents involved three types of situations (obligation, opportunity, and intent) and were categorized as "relational" and "non-relational." Differences in personal approval/disapproval ratings, estimates of approval/disapproval of co-workers and company, as well as the individual's estimate of the likely punishment were examined by sex, position in the company, industry type, number of years in the profession, number of years working for the current employer, and education. Respondents rated nine scenarios. For each scenario, a rating for personal, co-worker, company, and action was present. Recall that the five-item bipolar scale (1-strongly approve/5-strongly disapprove) was used for the personal, co-worker, and company scores. While "company response" was a list of possible punishments arranged from least severe (1-no action) to most severe (6-fire the employee). Table 2 contains summary statistics for the nine scenario questions. For each question, the mode, mean, standard deviation, and number of usable responses are given for self, co-workers, company, and action.

Table 2. Mode, Mean and Standard Deviation for Responses to Scenarios

Scenario	Personal [1] Approval of Actions			Co-worker Approval of Actions			Company Approval of Actions			Company [2] Response to Actions		
Obligation	**mode**	**mean**	**sd(n)**	**mode**	**mean**	**sd(n)**	**mode**	**mean**	**sd(n)**	**mode**	**mean**	**sd(n)**
1 Responsible Use	5	4.38	.96(212)	4	3.60	.99(132)	5	4.44	1.01(239)	3	2.69	1.09(245)
2 Responsibility	1	2.46	1.45(120)	1	2.47	1.36(108)	3	2.78	1.42(91)	3	2.78	1.37(187)
3 Acknowledgement	5	4.52	.81(233)	5	4.36	.84(188)	3	3.47	1.08(133)	1	1.59	.96(218)
Opportunity												
4 Obtain Software	5	4.32	.94(203)	3	3.31	1.13(121)	5	4.25	1.03(196)	3	2.63	1.33(190)
5 Unauthorized Use	5	4.60	.76(257)	5	4.07	.93(141)	5	4.67	.69(265)	3	3.34	1.62(178)
6 Disruptive Behavior	5	3.76	1.32(147)	5	3.94	1.16(151)	5	3.95	1.09(142)	3	2.44	1.11(202)
Intent-Use of Resources												
7 Non-profit	3	3.09	1.13(141)	3	2.59	.99(154)	3	3.56	1.05(152)	1	1.74	1.40(245)
8 Personal Profit	5	4.45	.97(239)	4	4.03	1.07(153)	5	4.67	.79(278)	3	3.67	1.69(154)
9 Company Profit	3	3.21	1.33(101)	3	2.84	1.94(127)	3	2.94	1.29(121)	1	1.63	1.38(248)

[1] Scale of responses for Self, Co-worker, and Company is on a scale of 1 to 5 with (1) strongly approve and (5) strongly disapprove.
[2] Possible actions: 1) no action, 2) demotion, 3) censure/reprimand, 4) fine, 5) suspension, and 6) fire.

Sex

One hundred five women and 245 men responded to the questionnaire. See Table 3 for the mean and standard deviation of responses by sex for each part of each scenario. Two-tailed t-tests for difference of means in responses of females and males revealed few differences (see Table 4). There were three cases where differences at the .10 level of significance were found. Five scenarios were judged to be "relational" and four "non-relational." This provided ample opportunity for gender differences to manifest if indeed there are "situational" differences (Dawson, 1997); however, none are observed.

These results are rather consistent with the mixed findings already in the literature. They do not seem to reflect the finding of Loch and Conger (1996) although their work is with a predictive model, whereas here, evaluation of different aspects of the environment were used.

Table 3. Means and Standard Deviations of Female and Male Respondents

Scenario	Relational	Sex	Personal		Co-worker		Company		Action	
			m	sd	m	sd	m	sd	m	sd
Responsible Use	no	F	4.434	.86	3.486	.92	4.423	1.01	2.527	.86
		M	4.375	.91	3.663	.95	4.469	.92	2.621	.91
Responsibility	yes	F	2.620	1.42	2.454	1.18	2.854	1.31	2.626	1.02
		M	2.367	1.41	2.479	1.38	2.740	1.41	2.501	1.06
Acknowledgement	yes	F	4.567	.71	4.366	.70	**3.317**	**.98**	1.563	.92
		M	4.498	.85	4.355	.90	**3.538**	**1.12**	1.609	.95
Obtain Software	yes	F	4.248	1.03	3.190	1.11	4.200	1.04	2.344	1.09
		M	2.351	.90	3.364	1.14	4.272	1.03	2.491	1.09
Unauthorized Use	no	F	4.657	.68	4.050	.92	4.660	.74	2.622	.90
		M	4.569	.79	4.066	.93	4.667	.67	2.823	1.24
Disruptive Behavior	yes	F	**3.552**	**1.41**	3.881	1.24	3.911	1.18	2.385	1.09
		M	**3.844**	**1.28**	3.959	1.13	3.958	1.05	2.397	1.04
Personal Non-Profit	no	F	2.962	1.14	2.624	1.09	3.495	1.03	1.429	.94
		M	3.144	1.12	2.573	.94	3.579	1.06	1.477	.91
Personal Profit	no	F	4.524	.89	4.158	1.03	4.673	.85	2.907	1.21
		M	4.420	1.01	3.967	1.09	4.668	.76	2.920	1.14
Company Profit	yes	F	**3.429**	**1.29**	2.941	1.20	2.899	1.26	1.370	.95
		M	**3.097**	**1.33**	2.789	1.19	2.949	1.30	1.404	.97

Table 4. Results of Two Tailed T-Tests for Difference by Sex of Mean Scenario Responses

Scenario	Relational	Personal	Co-Worker	Company	Action
Respsonsible use	no				
Responsibility	yes				
Acknowledgement	yes			t=-1.73, p=.085	
Obtain Software	yes				
Unauthorized Use	no				
Disruptive Behavior	yes	t=-1.89, p=.059			
Personal Non-Profit	no				
Personal Profit	no				
Company Profit	yes	t=2.15, p=.032			

Note: t-value is computed with (female-male).

Position in the Company

The Oneway ANOVAs revealed a few differences in responses by position (see Table 5). Significant differences among categories of positions were noted in 11 of the 36 scenario questions.

Table 5. Results of One-Way Analysis of Variance for Scenario Responses by Position

Scenario	Personal	Co-Worker	Company	Action
Responsibility			**.0835**	
			none	
Acknowledgement			**.0676**	
			(1)-7	
Obtain Software	**.0861**		**.0403**	**.0584**
	(2)-3		(1,2)-3	none
Unauthorized Use	**.0117**			
	none			
Disruptive Behavior		**.0899**	**.0148**	
		none	(1,2,3,4,6,7)-8	
Personal Non-Profit	**.0952**			
	none			
Personal Profit	**.0007**		**.0145**	
	(1,2,7)-8		(7)-8	
Company Profit				

Note: If the F-statistic had p<.10 level of significance the probability is listed in the table above. A post hoc test on these cells was performed to look for individual differences using Student-Newman-Keuls at the .05 1s. The results are reported where (1,2)-3 would mean categories 1 and 2 each differ from category 3. The scheme used for coding the categories is below.

Positions:

Senior Management	n=52
Middle Management	n=66
Programmer	n=26
Analyst	n=54
Software Engineer	n=11
System Supervisor	n=15
Data Processing Manager	n=76
CS/MIS Educator	n=20
Other	n=37

Several interesting differences are indicated by the statistical analysis. For Company, differences were indicated in five of the nine scenarios. Recall that this reflects the respondent's judgement of the company approval/disapproval of actions described in the scenario. Perhaps individuals in the various positions perceive the mission and perspective of the company differently. In addition, for Personal, Company, and Action, there were differences in responses to the *Obtain Software* scenario. Notice that post-hoc tests revealed that in two of these, programmers differed from management. Additional post-hoc findings show that in three of the eleven significant cases, educators differed from various other groups. Previous research leads one to expect the CS/MIS educator to have a different take on their organization than persons in these other positions (see Pierce & Henry, 1996c; 1994b).

Industry Type

Few significant differences resulted from Oneway ANOVA data analysis using industry type (see Table 6).

Table 6. Results of One-Way Analysis of Variance for Scenario Responses by Industry Type

Scenario	Personal	Co-Worker	Company	Action
Responsible use				
Responsibility				
→ Acknowledgement			**.0000**	**.0001**
			(1,2,3,5,6,8,9)-7	(1,4,9)-7
Obtain Software				
Unauthorized Use				
Disruptive Behavior				
Personal Non-Profit			**.0554**	
			none	
→ Personal Profit	**.0016**		**.0067**	
	(1,4,7,9)-3		(1,9)-3	
Company Profit		**.0574**		
		none		

Note: If the F statistic had p<.10 level of significance the probability is listed in the table above. A post hoc test on these cells was performed to look for individual differences using Student-Newman-Keuls at the .05 1s. The results are reported where (1,2)-3 would mean categories 1 and 2 each differ from category 3. The scheme used for coding the categories is below.

Industry Types:

Manufacturing	n=71
Government	n=33
Education	n=47
Finance	n=34
Utilities	n=20
Service	n=25
Consulting	n=41
Wholesale/retail	n=14
Other	n=70

Notable perhaps are the differences in responses to the *Acknowledgement of Recognition* scenario. In both Company and Action responses Consultants differed from most other groups in a post-hoc Student-Newman-Keuls test. In addition, in the *Personal Profit* scenario, those in education differed from various other groups.

Age

Ages of respondents ranged from 21 to 64 with a median of 42, mean of 41.2, and standard deviation of 9. The results of the regression analysis are expressed as Pearson Correlation Coefficients in Table 7. All significant correlations were positive indicating that disapproval increased with age of respondent.

Table 7. Pearson Correlation Coefficients for Age and Scenario Responses

Scenario	Personal	Co-Worker	Company	Action
Responsible use				
Responsibility				
Acknowledgement			r=.18, p=.001	r=.10, p=.084
Obtain Software	r=.26, p=.000	r=.17, p=.002	r=.13, p=.019	r=.14, p=.014
Unauthorized Use				
Disruptive Behavior	r=.13, p=.014			
Personal Non-profit	r=.15, p=.005			
Personal Profit				
Company Profit	r=.10, p=.076			

Notable results include significant differences in four of the nine scenarios for personal opinions. Furthermore, for the *Obtain Software* scenario, significant positive correlations were noted for personal, peer, company, and action responses. Additional interesting patterns were found in the company and action responses to the *Acknowledgement* scenario.

Number of Years in the Profession

Number of years in the profession of respondents ranged from 0 to 44 with a median of 15, mean of 16.5, and standard deviation of 8.7. Regression analysis of the years of experience as a predictor of responses was performed (see Table 8). In all significant cases, as the number of years increased the disapproval increased is evidence by positive Pearson Correlation Coefficients.

Table 8. Pearson Correlation Coefficients for Years in the Profession and Scenario Responses

Scenario	Personal	Co-Worker	Company	Action
Responsible use	r=.11, p=.040			
Responsibility			r=-.09, p=.098	
Acknowledgement			r=.16, p=.004	
Obtain Software	r=.23, p=.000	r=.16, p.003	r=.14, p=.12	r=.18, p=.001
Unauthorized Use				r=.09, p=.099
Disruptive Behavior	r=.20, p.000			
Personal Non-profit	r=.18, p=.001	r=.09, p=.095		
Personal Profit	r=.13, p=.017			
Company Profit				

There were more differences in the Personal responses than in other categories; furthermore, there were differences in the reaction to the *Obtaining Software* scenario. The results here support somewhat the connection between years of experience and IT ethical judgement.

Number of Years with Current Employer

Respondents' number of years with cureent employer ranged from 0 to 33 with a median of 7, mean of 8.5, and standard deviation of 6.8. Few differences were found using a regression analysis on number of years with the current employer and responses to the scenarios (see Table 9).

Table 9. Pearson Correlation Coefficient for Years with the Current Employer and Scenario Responses

Scenario	Personal	Co-Worker	Company	Action
Responsible Use				
Responsibility				r=-.09, p=.100
Acknowledgement		r=.11, p=.040		
Obtain Software	r=.10, p=.069	r=.11, p=.044		
Unauthorized Use				
Disruptive Behavior				
Personal Non-profit				
Personal Profit				
Company Profit			r=.09, p=.095	

Again correlation is observed in the *Obtain Software* scenario. Disapproval was positively related for Personal and Co-Worker questions; therefore, disapproval is greater as years with the company increased.

Education

An analysis variance among responses for each education category revealed a few differences (see Table 10).

Table 10. Results of One-Way Analysis of Variance for Scenario Responses by Education Level

Scenario	Personal	Co-Worker	Company	Action
Responsible use	**.0075**			
	(1,2,4)-5			
Responsibility				
Acknowledgement				
Obtain Software				
Unauthorized Use	**.0602**			
	none			
Disruptive Behavior				
Personal Non-Profit	**.0809**			
	none			
→ Personal Profit	**.0304**		**.0557**	**.0116**
	(1,2,3,4)-5		none	(4,5)-3
Company Profit			**.0469**	**.0261**
			(2)-4	(2)-4

Note: If the F-statistic had p<.10 level of significance the probability is listed in the table above. A post hoc test on these cells was performed to look for individual differences using Student-Newman-Keuls at the .05 1s. The results are reported where (1,2)-3 would mean categories 1 and 2 each differ from category 3. The scheme used for coding the categories is below.

Education Levels
High School
2-Year College
4-Year College
Master's
Doctorate

Differences appeared in the Personal responses for four cases. In two of these, post-hoc differences were found between the Doctorate and others. Other findings of interest are responses to the *Personal Profit* scenario where there were differences for Personal, Company, and Action. However, no definitive patterns emerge related to the connection between education level and IT ethical judgements.

CONCLUSIONS

These findings do not support including sex, industry type, education and years with current employer as influences in the model in Figure 2. Of the factors studied here, age, years in the profession, and position seem the most promising as antecedents in an IT ethical decision-making model. The current work which focused upon IT scenarios seems to reinforce the mixed results from research done in other areas such as general business, marketing, and sales. Questions which remain are as follows:

- Is it appropriate to generalize from studies of undergraduate and graduate students, most of whom are very young and have little experience?
- How do educators prepare graduates to make responsible IT ethical decisions?
- In Computer Ethics research, how should samples be stratified to insure a cross section of perspectives?

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