

Internet Ethics: An Empirical Study of Students' Online Ethical Perception

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Abstract

The rapid growth of the Internet has not only revolutionized the business paradigm, but it also has had a tremendous impact upon our daily life. However, use of the Internet is not without problems. These problems include invasion of privacy, integrity of information, and faulty identity. And just like the real world, many of the disturbing problems that occur on the Internet are caused by unethical human behavior. Thus, the goal of this paper is to extend the understanding of the ethical beliefs of Internet users. The results of a survey of 404 college students show that students of different genders and majors as well as academic levels exhibit significantly different ethical attitudes in some online situations. Specifically, females, computer science students, and seniors tend to have higher ethical values than males, business students, and freshmen in the Internet environment, respectively. The results also indicate that Internet users tend to be willing to risk their privacy for better service. In addition, though anonymity has caused many problems, Internet users seem to be aware of the risk involved and, therefore, discount the validity of the information coming from the Internet.

Keywords: PAPA (Privacy, Accuracy, Property, Accessibility), Internet Ethics

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1. Introduction

The rapid growth of the Internet not only has revolutionized the business paradigm, but it also had had a tremendous impact upon our daily life. More and more people have turned to the Internet to search for information, to shop, to communicate with one another, and even to make new friends. Because of the interactive character of the Internet (Butler and Peppard, 1998; Ghosh, 1998; Palmer and Griffith, 1998; Peterson *et al.*, 1997), people can communicate without too much effort. Through online communication and interaction, Internet users gain social satisfaction similar to that in the physical world.

The Internet has provided an unprecedented convenient mean of communication. Due to the screen-to-face media, the way we communicate is reshaped. According to Johnson (1997), there are three special features of the Internet: the scope (i.e., the combination of vastness of reach, immediacy, and availability to individuals for interactivity) of communication becomes more powerful; *anonymity* is encouraged; and the *reproducibility* is much easier. These three characteristics bring us a new set of moral concerns as well. These include invasion of privacy, integrity of information, faulty identity (e.g., Schwartz, 2000), and access of digital property (e.g., Phillips and Horton, 2000; Simpson, 1999). In addition, just like the real world, most of the disturbing problems that occur on the Internet are caused by unethical human behavior (Johnson, 1997). As important as it may seem, there are, however, few studies that devote to this particular topic. Therefore, it is imperative for researchers to extend the understanding of the ethical beliefs of Internet users.

The problems of ethics arising from using new technology have always been a concern of society (Hodel, Holderegger, and Luthu, 1998). Marshall (1999) identified privacy, accessibility and control of essential facilities as new issues in ethics related to computer usage. To further understand the issues of computer-related ethics, many studies have been performed recently. Harris and Weaver (1994-1995) compared the attitudes among college students toward information system (IS) ethics. They found that as academic levels increased, the sensitivity to ethical issues also increased. By surveying sixty-five computer science and computer information systems students, Athey (1993) concluded that ethical judgment was related to gender, computer experiences and academic level. In attempting to develop a

profile of student software pirates, Sims, Cheng, and Teegen (1996) obtained a similar finding and concluded that male students tended to copy software more than females. O'Clock and Okleshen (1993) further investigated the possible difference in ethical perception that might be caused by different majors, such as business and engineering. Their results did not show a significant difference between undergraduate business and engineering majors in ethical values, but there was a significant difference in ethical values between MBA students with business training and those with an engineering background.

The results of the past researches have provided evidence that gender difference, academic majors and levels as well as computer experience would affect the perception of IS ethics. Since the Internet is a relatively new media, ethical problems related to the Internet are yet to be investigated. Accordingly, this paper focuses on the study of Internet ethics perceived by Internet users. It is, therefore, the goal of this paper to answer the following questions:

1. What are the perceptions of college students regarding Internet ethics?
2. Will gender difference contribute to different perceptions of Internet ethics?
3. Will various academic levels contribute to different perceptions of Internet ethics?
4. Will different curriculum contribute to different perceptions of Internet ethics?

The above research questions are significant for the following reasons. First, the Internet has become the most important information resource that people can utilize on a regular basis. However, the advancement of information technology has posed threats such as the invasion of individual privacy (Szewczak, 1999). To insure an orderly and trustworthy cyber world, more attention must be paid to online ethics. It is especially true for college students since they are the most frequent users of the Internet. Investigation of their online ethical perception would lead us to a better understanding of the new media. Secondly, prior ethical studies have suggested that gender (male vs. female), academic level (freshman vs. senior), and majors (computer science major vs. business major) might be some of the variables that influence ethical behavior. Since the importance of the Internet as a form of communication media has grown tremendously, it is also interesting to examine the possible effect of such variables on the ethical perception of students when using Internet. To answer the questions raised in this study, the following hypotheses have been formulated.

H1: Female students are more ethical on the Internet than male students.

H2: Seniors are more ethical on the Internet than freshmen.

H3: Students with a computer science major are more ethical on the Internet than students with a business major.

2. Research Method

To answer the research questions, a questionnaire (see Appendix) was developed as the research instrument based on the four categories of PAPA (Mason, 1986). According to Mason (1986), privacy, accuracy, property and accessibility (PAPA) are the four major issues of information ethics for the information age. As technology has advanced, the information age has developed into a networked environment. Therefore, our study focuses especially on the online environment. PAPA is also used to categorize the moral issues arisen in the networked environment since this new environment allows its users to hide their identities easily (accuracy), duplicate and disseminate digital information more efficiently (privacy, property) and widely (accessibility). Twelve Internet scenarios, three for each category, were created to measure respondents' attitudes in these situations. To increase readability of the questionnaire as well as to verify the appropriate categorization of each scenario, ten Internet experts were asked to complete the questionnaire in the pre-test phase. After completing the questionnaire, the experts were then asked to identify the proper category to which each scenario belongs according to the definition of PAPA (Mason, 1986). Though there were debates on the categories of some of the scenarios (mainly the scenarios concerning privacy and accessibility), the dispute was caused mainly by the conflicts of the roles the individual played in each scenario (Lally, 1996). By rewording the scenarios clearly, the experts agreed on the original categorization. The resultant questionnaire is shown in the Appendix.

The questionnaire was then administered to the freshmen and the seniors in the department of Computer Information Science and the department of Business Administration at Soochow University in Taiwan. For each scenario, the participants were asked to indicate their attitudes by expressing the degree to which they agreed that the behavior in that scen-

ario was unethical. Responses were made using a 7-point Likert scale with “1” representing completely disagreed and “7” completely agreed. Thus, the higher the response, the less ethical the behavior in a scenario was perceived to be.

Table 1 Demographic characteristics of students in the sample

Variable	Category	Subject	Percentage
Major	Computer Science	161	45.2
	Business	195	54.8
Class	Freshman	210	59.0
	Senior	146	41.0
Gender	Male	243	68.2
	Female	113	31.8
Internet Use Frequency	Never use	16	4.5
	1 to 3 times per week	119	33.4
	4 to 7 times per week	112	31.5
	8 to 14 times per week	42	11.8
	More than 14 times	67	18.8

A total of 404 students participated in this study. After eliminating incomplete questionnaires, the responses of 356 participants were analyzed. Table 1 shows the demographic information of the student sample. There were 161 computer science students and 195 business major students in the sample. The numbers of freshmen and seniors were 210 and 146, respectively. Male subjects out-numbered female subjects by a ratio of 2:1. In terms of the Internet experience, most of the subjects participated in this study had utilized the Internet on a regular basis at the time of conducting the questionnaire study. To test the hypotheses suggested in the introductory section, t-tests were conducted. The next section presents the results of the study.

3. Results and Discussion

Table 2 presents the descriptive statistics of the responses. On average, students perceived most of the Internet scenarios presented in this study as unethical, except for item Q8. The “most” unethical situations were *sending a possibly contaminated (virus) file via Internet* (item Q7) and *reading others’ email messages* (item Q6). It is interesting to note that some scenarios were judged to be in an ethical “gray” area. These include *letting friends access online paid database* (Q8), *disguising real identity* (Q10), and *using automatic technique to collect user’s behavior on the Internet* (Q1). While Q8 is a situation that exists both in a traditional setting as well as an Internet setting, Q1 and Q10 are new ethical issues that can only happen online.

From the result of the study, the ambiguity of identity (Q10) does not seem to be considered an ethical problem. This finding is somewhat surprising since the convenience of using a pseudonym on the Internet has created numerous social problems. It, in turn, affects the development of online trust (Johnson, 1997). One possible explanation is that Internet users have accepted this special characteristic of the Internet and are still willing to communicate with one another at their own risk.

As for the situation which uses new technology to collect user’s behavior on the Internet without the consent of the user (Q1), Internet users seem to tolerate such an act in exchange for better service.

Table 2 Descriptive statistics

(N=356)	Mean	Std. Dev.
Privacy		
Q1	4.38	1.82
Q6	6.58	1.13
Q9	6.08	1.34
Accuracy		
Q3	5.53	1.60
Q7	6.42	1.10
Q10	4.82	2.10
Property		
Q2	5.37	1.98
Q4	5.06	1.70
Q11	5.38	1.56
Accessibility		
Q5	5.34	1.85
Q8	3.12	1.86
Q12	5.71	1.56

To test hypotheses H1, H2, and H3, t-tests were performed to examine the effect that gender (male vs. female), academic level (freshmen vs. seniors), and major (computer science vs. business) have on attitudes toward Internet ethics. Tables 3-5 present the results.

As is shown in Table 3, female students are generally more ethically oriented than male students, except for items Q1 and Q3. This seems to coincide with the prior research (Sims, Cheng, and Teegen, 1996; Loch and Conger, 1996; Harris and Weaver, 1994-1995; Kini, Rominger, and Vijayaraman, 2000) indicating that females are more ethical than males. However, the t-test indicated that only two (Q2, Q11) out of twelve scenarios showed significant differences. Both of them belong to the Property category. This might imply that females have a higher ethical standard than males in terms of copyright issues in the Internet environment.

Table 3 Mean comparison between males and females

(N=356)	Male (N=243)	Female (N=113)	Significance
Privacy			
Q1	4.40	4.34	0.777
Q6	6.55	6.65	0.404
Q9	6.04	6.18	0.359
Accuracy			
Q3	5.58	5.43	0.435
Q7	6.38	6.50	0.370
Q10	4.78	4.92	0.552
Property			
Q2	5.24	5.63	0.087*
Q4	5.00	5.18	0.361
Q11	5.28	5.60	0.070*
Accessibility			
Q5	5.26	5.52	0.206
Q8	3.12	3.12	0.983
Q12	5.71	5.72	0.960

p* <0.10 ◦

Though gender difference is an important factor in affecting the perception of IS ethics, it does not seem to show a significant difference in the perception of ethics in the Internet environment. One explanation could be that the anonymity provided by the Internet acted as a shield for the users, both male and female, so they behave in a less restrained manner. Thus, despite the fact that females are more ethically sensitive in many aspects, their ethical behavior on the Internet did not show a significant difference from male users.

Table 4 Mean comparison between freshmen and seniors

(N=356)	Male (N=210)	Female (N=146)	Significance
Privacy			
Q1	4.28	4.52	0.214
Q6	6.51	6.68	0.179
Q9	6.09	6.07	0.879
Accuracy			
Q3	5.71	5.27	0.009***
Q7	6.40	6.45	0.704
Q10	4.91	4.69	0.329
Property			
Q2	5.06	5.81	0.000****
Q4	4.84	5.36	0.004***
Q11	5.43	5.32	0.500
Accessibility			
Q5	5.29	5.41	0.547
Q8	3.03	3.25	0.287
Q12	5.67	5.77	0.570

p* < 0.10 ; p** < 0.05 ; p*** < 0.01 ; p**** < 0.001 。

Table 4 exhibits the mean difference in ethical value between freshmen and seniors. Prior research on computer ethics suggested that seniors generally have stricter ethical standards than freshmen (Stevens, Harris and Williamson, 1993; Harris and Weaver, 1994-1995). This pattern of ethical judgment was confirmed and extended in the Internet environment. The result of the t-test reveals that seniors are more ethically conscientious than freshmen on the issue of property (Q2: p < 0.001; Q4: p < 0.01) as well as the correctness of the information presented on the Internet.

The reason for insignificant difference of ethical attitudes between freshmen and seniors for some of the scenarios could be due to the fact that the Internet is a fairly new form of media. Not much emphasis has been placed on reinforcing ethical behavior on the Internet.

Table 5 Mean comparison between computer science and business major

(N=356)	Computer Science (N=161)	Business (N=195)	Significance
Privacy			
Q1	4.58	4.21	0.058**
Q6	6.51	6.64	0.274
Q9	6.11	6.06	0.698
Accuracy			
Q3	5.57	5.50	0.665
Q7	6.33	6.49	0.166
Q10	5.16	4.55	0.066*
Property			
Q2	5.17	5.53	0.087*
Q4	5.16	4.97	0.288
Q11	5.63	5.11	0.006***
Accessibility			
Q5	5.45	5.25	0.321
Q8	3.70	2.65	0.000****
Q12	5.93	5.53	0.015***

p* < 0.10 ; p** < 0.05 ; p*** < 0.01 ; p**** < 0.001 。

Table 5 shows the results of mean comparison between the ethical values of computer science majors and business majors. Consistent with the results from prior research in computer ethics (O’Clock and Okleshen, 1993), students from the business department generally have more flexible ethical values than CS students in the Internet environment, except for Q6, Q7, and Q2. The results of the t-test show that six out of twelve scenarios exhibited significant differences. The difference is especially substantial in the category of Accessibility (Q8: p < 0.001; Q12: p < 0.01).

4. Conclusion and Limitations

This study investigates the ethical attitudes of students in the Internet environment in Taiwan. Although the results may be primitive, it is clear that people of different gender and

majors as well as academic levels exhibit significantly different ethical attitudes in some online situations. The results indicated that females, computer science students and seniors tend to have higher ethical standards than males, business students and freshmen in the Internet environment, respectively. Though the privacy issue has always been a big concern among Internet users, this study shows that Internet users may be willing to risk their privacy for better service. Moreover, this study also showed a different perspective in the issue of anonymity. Though anonymity on the Internet has caused many social problems, Internet users are aware of the risk involved and take it as a special feature of Internet behavior. To protect themselves, they tend to discount the validity of the information coming from the Internet (Johnson, 1997).

The implications of this study are two fold:

In terms of academic implication, despite the ongoing disputes about whether or not the ethics could be taught in classroom setting (e.g., Solberg, Strong, and McGuire, 1995; Hunt and Bullis, 1991), our results show that education seems to have some influences on students' online ethical perception. The differences in educational level (seniors>freshmen) and educational background (computer science major>business major) did somewhat exhibit different ethical perception. Therefore, the issue of online ethics should be brought up and discussed in classroom settings.

In terms of managerial implication, one of the interesting findings in this study is that Internet users may be willing to risk their privacy for better and more personal services. Therefore, online companies should take this advantage and emphasize one-to-one services. In doing so, the development of user's profile would be a useful tool in identifying online customer's individual needs. As to the issue of anonymity, the result of this study shows that there is a sense of mistrust due to anonymity. Therefore, establishing a trustworthy brand name becomes utterly important for the online companies.

Our study provides a primitive, but important, finding of online ethics for Internet users. However, other issues such as nationality (Whitman, Hendrickson, Townsend, and Rensvold, 1998), system experience (Sims, Cheng, and Teegen, 1996), educational programs (Lu and Lin, 1998), and professionals (Cole and Smith, 1996 ; Im and Koen, 1999)

also render possible effects in developing ethical values for an individual. Further research should investigate how these factors affect on online ethics. In this study, we have focused on the students' ethical perceptions toward Internet related scenario. It would also be interesting to investigate their behavioral intentions as well. By making comparisons between their perceptions and behaviors for a given scenario will lead to a better understanding of online ethical behavior.

The results of this study should be interpreted and accepted with caution for several reasons. First, the subjects of this study are students. Although according to the survey done by Yam.com (Yam, 1999), students are the major users of the Internet, it is, however, a convenient sample. Cautions need to be taken when generalizing these results to other settings. Secondly, although the authors have tried to be neutral in describing the scenarios, some wording still appears to be negative. This might have had impact on the responses. However, the results can still offer some insights into online ethical behavior of Internet users. Therefore, this study not only provides a further understanding on the issue of online ethics, but it also offers an impetus for future research.

Appendix

Questionnaire

Privacy

- Q1. Using a special technique, such as Cookie, to collect and analyze customers' behavior on the Internet without the consent of the customers.
- Q6. Reading others' email messages.
- Q9. Exchanging customer email lists without the customers' consent.

Accuracy

- Q3. Providing outdated and inaccurate information on a company's web site to the public.
- Q7. Sending a file via the Internet knowing it could contain a virus.
- Q10. Disguising one's identity on the Internet.

Property

- Q2. Transferring the software developed in a previous company via the Internet to a new job.
- Q4. Doctoring others' reports found on the Internet.
- Q11. Downloading copyrighted software.

Accessibility

- Q5. Invading a school's server without disturbing its normal activity.
- Q8. Letting unauthorized user access an online paid database.
- Q12. Accessing the school's email lists for personal use.

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網路倫理—大學生線上倫理認知之探討

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摘 要

網際網路的迅速成長不只是在商業模式上掀起了變革，同樣影響我們的日常生活甚鉅。然而，使用網際網路也並非全然沒有問題，這些問題包括：個人隱私被侵入、資訊的完整性、以及冒充身份等。而上述在網路上發生的問題，就如同是在真實世界上一般，源自於人性中的不道德。所以，本篇論文的目的在於進一步探討網際網路使用者的道德信任程度。本研究以四百零四位大學生為調查對象，發現不同性別和科系以及年級的學生，在某些網路情境上表現出明顯不同的道德觀。特別是女性、資訊相關科系、以及高年級的學生在網路環境中有較高的道德標準傾向。研究結果亦指出，若網際網路能提供更完善的服務，網路使用者會較願意提供他們的個人資料。另外，網路使用者似乎相當清楚匿名現象所衍生的問題，因此對於網路上的資訊的品質採保留之態度。

關鍵詞：PAPA (資訊隱私權、資訊正確性、資訊擁有權、資訊可用權)、網路倫理

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