

WORKING PAPER SERIES

Discipline: Management/Education

Professionalism and Ethics – is education the bridge?

Zeenath Khan

University of Wollongong in Dubai

Ghassan al Qaimari

Fujairah College

Stephen D. Samuel

Mittal Steels [IT Services]

WP 75/2008

June 2008

© University of Wollongong in Dubai, 2008

Professionalism and Ethics – is education the bridge?

Zeenath Khan

College of IT
University of Wollongong in Dubai
zeenathkhan@uowdubai.ac.ae

Dr. Ghassan al Qaimari

Fujairah College
ghassan@fc.ac.ae

Stephen D. Samuel

Mittal Steels [IT Services]
Stephen.samuel@gmail.com

Abstract

In today's fast-paced world, where more and more emphasis is being placed on ethics and ethical behavior in the workplace, the IT industry remains such an area where little or no evidence has been presented to sustain claims by employees on whether pre-conceived notions of ethics lead to professionalism among employees. To this effect, this chapter tests the knowledge of IT professionals on ethical issues such as usage of email, net surfing, net privacy, copy rights and others as recognized by professional societies such as ACM, IEEE and ACS. The study further investigates the root cause of unethical behavior at workplaces as pre-knowledge, or knowledge gained through high school and university education. The chapter follows a grounded surveying approach to find out students' extent of awareness towards ethical issues such as cheating, plagiarism, and fabrication, software piracy, misusing telephone or access to Internet; thus correlating the findings to suggest causality between 'student education and consciousness of ethical issues' to the 'awareness of ethical issues among future IT professionals'. Among others, the chapter also proposes suggestions to school and university curricula to include subjects that highlight ethical issues at workplaces.

Keywords: *education, ethics, cyber ethics, corporate social responsibility, curricula, tertiary education, academia, plagiarism, software piracy*

ABOUT THE AUTHORS

al-Qaimari is a professor of Computer Science, and the CEO of Fujairah College. Prior to that, he taught at University of Wollongong in Dubai (January04-June06), where he was the Chair of College of IT, and at RMIT University (1995-2003). He obtained his doctorate from Heriot-Watt University, 1994, and received his BSc. in Electrical Engineering and MSc. in Computer Science from the University of Detroit. Professor al-Qaimari is actively involved with major industry players, such as IBM, Telstra and DaimlerChrysler. His research and consulting experience in the area of HCI, Usability and Software Engineering has earned him an international profile.

Samuel has been interested in computers since he was seven. He received his first computer when he was ten and has been programming ever since. He completed his graduation in Computer Science with software specialization and has been involved in developing solutions for multinational corporations in various fields from accounting to press printing to advertising. He is currently working on his dissertation proposal and hopes to carry on his love for computers.

Khan has been teaching at the Australian University of Wollongong in Dubai since 2001 and is currently pursuing her PhD in Community Informatics. She is Bangladeshi but spent most of her adult life in the United Arab Emirates. She is the receiver of the Federal Environmental Award for scientific research in the UAE and has won many other awards for her dedication to the local community and environment. Her passions include reading, writing and singing.

1. Introduction

Any organization in any industry emphasizes the need for 'ethics at work places' among their employees to build and maintain 'professionalism'. Ethics are standards or codes of conduct that define right from wrong and form the basis of civil societies; whereas, 'professionalism includes integrity, courtesy, honesty, and willingness to comply with the highest ethical standards' (Oregon State Bar, 2005) among others.

However, how do employers ensure the employees they hire have grounded sense of ethics that they will be able to apply to their work place in order to maintain professionalism?

In this chapter, we consider the problem to be two-tiered. In the first tier, we look at the future employees of the IT industry – the students; their understanding and exposure to ethical issues such as plagiarism, cheating and software piracy. In the next part, we look closely at IT professionals' awareness to organizations such as ACM, IEEE and ACS; and to ethical issues at work places such as misuse of telephones, emails and software piracy. We then consider through grounded survey method how education of ethical issues at high school or tertiary-level might increase awareness among young adults to help them develop into employees who can carry themselves with utmost professionalism at work places.

Professionalism and Ethics: how they are perceived and why they are so important

2. Professionalism and Ethics: how they are perceived and why they are so important

In today's world, professionalism and workplace ethics go hand-in-hand. Professional and prestigious societies such as ACM (ACM, 1992), IEEE (IEEE, 1990) and ACS (ACS, 2005) all have their own sets of codes that they expect their members to follow and adhere to. However, 'computer ethics' at work places are not the discovery of the twenty-first century, despite popular beliefs. It can be dated to as far back as the World War II in the 1940s when MIT professor Norbert Wiener helped build an anti-aircraft canon to shoot down fast planes (Bynum, 2001) which ultimately led him to some revolutionary 'insightful ethical conclusions' about information and communication technology (for further readings, ref. Wiener, 1948 and Wiener, 1950/54). However, it was not till the 1960s that this concern took the shape of Code of Professional Conduct when Donn Parker began to examine unethical and illegal uses of computers by computer professionals. Parker's work eventually grounded into the codes of conduct for members of the Association for Computing Machinery in 1973 (Bynum, 2001). By the 1990s, computer ethics was a full-blown topic of discussion at conferences, workshops, universities, journals and such.

Today, individuals and businesses alike, view ethics as something synonymous with religious beliefs. Although ethics can be seen as value management, misconceptions exist that have filtered into the field of computer ethics. Often enough, ethics is viewed as a 'matter of religion', 'discipline best led by philosophers and academics', 'good guys preaching to the bad guys', 'new concept', 'not in trouble with law', and 'being of little practical relevance' (McNamara, 1999). Other beliefs include 'being a matter of following one's feelings', 'is the same as following the law' or 'doing whatever the society accepts' (Velasquez, Andre, Shanks, J, Meyer, 2006).

Despite these perceptions of ethics at workplaces, more employers are becoming aware of the competitive advantage of hiring and retaining ethically 'aware' employees. A survey by the Aspen Institute and management consulting firm gives evidence that highlights the 'focus on ethics and values [especially after] the business scandals [surrounding the] dot-com market' (Verschor, 2005). It also shows that '...of 89% of the companies that have a written corporate values statement, 90% specify ethical conduct as a principle' (Verschor, 2005). Other statistics show that companies lose over \$20 billion a year from thefts by employees (Mansueto Ventures, 2005). Hacking, emailing, net surfing, downloading and sharing customer details are all forms of stealing that add to the cost of retaining an employee. Statistics such as - '...internet misuse at work is costing American corporations more than \$85 billion annually in lost productivity'; or '1 in 3 companies have detected spy ware on their network'; or even 'although 99% of companies use antivirus software, 82% of them are hit by viruses and worms' (Webcontent Filter, 2005) - help to establish employers' insistence on professionalism among its workers.

However, the critical question remains:

How does one ensure that workplace ethics have been instilled in an employee so he/she can maintain a certain degree of professionalism?

3. What is the root of the problem? Understanding the importance of education in building ethically correct professionals

The Computer Ethics Institute and the National Computer Ethics & Responsibilities Campaign (NCERC) have briefly highlighted that the answer lies in 'education'. According to Nick Routledge, co-chairman of NCERC, 'a lot of the unethical behavior we see is a product of ignorance more than anything else...[hence] NCERC is pushing for computer ethics becoming part of standard school curriculum' (FREEDOM, 2004) .

However, before we launch into the task of finding the root of the problem, we must consider some definitions of ethics and professionalism, particularly in terms of students and employees. Although it has been and continues to be a ground for debate, the commonly referred to definition of ethics falls into two parts:

'[it] refers to well based standards of right and wrong that prescribe what humans out to do, in terms of rights, obligations, benefits to society, fairness, or specific virtues... [example] refrain[ing] from rape, stealing, murder, assault, slander and fraud...
...ethics [also] refers to the study and development of one's ethical standards.
...feelings, laws and social norms can deviate from what is ethical; so ethics [also stands as] the continuous effort of studying own moral beliefs and moral conduct, and striving to ensure that the person and the institutions person(s) help to shape, live up to the standards are reasonable and solidly-based.'

(Velasquez, Andre, Shanks, J, Meyer, 2006)

A professional, on the other hand, is popularly defined by Wikipedia as:

'[someone who] does an activity to receive payment for an act (as a profession), which usually requires expertise and carries with it socially significant mores and folkways. That is to say, behaving professionally would indicate that the person's

actions remain in accordance with specific rules, written or unwritten, pertaining to behavior, dress, speech, etc. By extension, the adjective professional identifies somebody recognized for expertise or skill in a craft or activity.'

(Wikipedia, 2006)

Donald Gotternbarn has gone an extra mile to define a 'computing professional' in the following manner:

'...when I present myself in the role of a computer professional to you, I say that I have the skill, the talent and the experience to do this job well and I say that I have the moral commitment to a set of moral values and a derivative commitment to a set of standards about software development.'

(Gotternbarn, 2000)

Gotternbarn also emphasizes that the computer ethics is no different from any other ethics. Although no extensive research has been carried out on ethics at workplaces that should govern IT professionals, Gotternbarn argues that the concept by itself can not be considered something new or unique (Gotternbarn, 2000). He further argues that, to date, major research has only highlighted the use and abuse of computers but not the individuals handling them, or as he puts it, 'the domain of professional ethics --the values that guide the day to day activities of computing professionals in their role as professionals' (Gotternbarn, 2000). This can also be extrapolated to the world of students, where very many courses and subjects are dedicated to teaching students on how to ethically conduct themselves in typical situations, say robbing a bank or using office car to run personal errands; but there are no formal definitions of computer ethics that should be the focus of students' learning in the twenty-first century where information and technology is abundant and everyone is a literate (Forcht, 1991 pp 56-67).

For the purposes of this chapter, therefore, we bring in set definitions of issues we consider to be ethical for students and employees. Where students are concerned, ethical issues today include but are not limited to plagiarism and fabrication, software piracy, misusing telephone or access to Internet. Plagiarism, as described by Lois Smith, 'is simply using someone else's words or ideas and claiming them as your own' (Smith, 2005). Fabrication is the process of "making up data". Software piracy follows the standard definition of copying/downloading and using software/programs developed by authorized personal/companies without due permission and/or license. Misusing telephone or access to Internet, in this context, refer to students in internships/summer jobs/part-time jobs, and will be defined as "actions using official services for personal interest".

For employees, the ethical issues include usage of email, net surfing, net privacy, copy rights and others as recognized by professional societies such as ACM, IEEE and ACS. Defining these issues, this chapter considers usage of email and net surfing as "actions using official services for personal interest"; net privacy is defined as security of individual and organizational information via email, letters, phone, fax or other media; copyrights follow the same definition as above (for students); and finally the actual recognition of the societies and their codes of conduct such as ACM (ACM, 1992), IEEE (IEEE, 1990) and ACS (ACS, 2005).

Having defined the scope of this chapter through the definitions of the ethical issues when looking at students and employees, we can see that the issues are similar. What students face as ethical issues now; become issues for employees in the future. The void that seems to be carried forward from student-level, hits

organizations despite their codes of conduct, laws and regulations that are in place to curb such behaviour. Why so?

Firstly, there have been extensive research and study on ethics among lawyers (for further reading, ref. Oregon State Bar, 2005), doctors, nurses (for further reading, ref. Lofton, 2004) and many other professions. However, very little in the form of academic evidence exists on the issue of information technology and ethics (as defined in this chapter) besides hacking and viruses. Brian Harvey (Harvey, 2005) talks extensively of hacking and ethics as do Marcia J. Wilson (Wilson, 2004), C. C. Palmer (Palmer, 2001) and many others. However, as the case of AOL and its ex-employee shows, there are other issues besides hacking such as, in the case of AOL, 'stealing 92 million e-mail screen names from the Internet company and selling them to a spammer' that cost the company an 'estimated \$300,000 from employee time spent dealing with the issue, as well as hardware and software expenses' (Kearney, 2005).

Although due importance has been given to software piracy (for further reading, ref. Intuit, 2006), other forms of unethical behaviour such as email or net misuse, reading others' emails, etc., have fallen out of focus.

Secondly, according to Maria Sackson, trying to reform employees through various codes and rules is a reactive approach (Sackson, 1996). It may reduce unethical behaviour for a while, but it is not a long-term solution to the problem. 'A proactive approach is teaching students about the need for ethical standards of behavior for computer professionals and users in classrooms' (Sackson 1996). This outlook is supported by IEEE and ACM proposal for Computing Curricula 2001 (that some accredited universities follow when introducing or revaluing their degree programs to streamline them). The Curricula dedicates a chapter to defining and rationalizing the necessity to incorporate professional practice into teaching (IEEE, ACM, 2001).

Ethics issues related to the information technology industry surface and affect organizations because of employees who fail to maintain professionalism at the work place. Since most of the problems root from a certain degree of ignorance to the knowledge of these issues actually being 'crimes', the core is the system of education that the professionals go through as students. Therefore, it is considered that the schools/universities play a major role in making successful professionals.

The findings reported in this chapter present a snapshot of students' extent of awareness towards ethical issues such as cheating, plagiarism, and fabrication, software piracy, misusing telephone or access to Internet. It then highlights IT professionals' extent of awareness of the ethical issues such as usage of email, net surfing, net privacy, copy rights and others as recognized by professional societies such as ACM, IEEE and ACS; and whether their education has had any effect on their knowledge. The chapter argues a correlation of these two studies and anticipates a possible causality between student awareness through education of ethical issues and its affects on professionalism.

4. Methodology

The authors prepared two sets of questionnaires, after dividing the respondents into two categories: professionals and students.

For the professionals, the questionnaire (ref. Appendix A) is divided into three parts. The first part begins by explaining the relevance of the questions and the

confidentiality of all respondents' answers. It then moves on to use Demographic Information questions. The questions include the respondents' occupation, the organization they work in and the number of years in service they have completed. The purpose of this section is to examine if any demographic information is related to how the respondents react to ethics and ethical issues. All the responses are provided anonymously in order to protect the respondents' privacy.

Throughout the survey, the question layout varies. This is done in order to accurately collect data. The first type of question layout was Likert items. Likert items were used for a variety of questions pertaining to ethics definitions and theory concepts. The Likert items gave the respondents an option to categorize how they viewed ethics attributes and various definitions of ethics and professionalism. Each Likert item provided a value from 1-5, categorized from strongly agree to strongly disagree. Each item explained how the participants rated the ethics attribute and presents the respondent with a range of options to respond. It also structured the choices that could be made. Ten statements on ethics definitions and perceptions are presented to the respondents. The participants are asked to indicate how strongly they agree or disagree with the statement on a 5 point Likert scale. For example, they are given a Likert item that "Ethics is a collection of values". They had the option to check "strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree." All ten statements are positively worded to minimize the respondent's confusion. Each scale point is coded as "strongly agree," "agree", "neither agree nor disagree", "disagree" and "strongly disagree". Later a numeric value for statistical analysis will be allocated such that a value of 5 is given to "strongly agree" and 1 to "strongly disagree."

Next, the respondents are asked to rate non-technical characteristics of an employee on a numeric Likert scale. On characteristics such as "Interacting with others effectively, be it boss, colleague or team" or "Honesty", the respondents are asked to indicate how strongly they agree or disagree with the characteristic being a part of professional employee. Each scale point is coded as a numeric value for later statistical analysis. A value of 5 is given to "strongly agree," and 1 to "strongly disagree."

The second part begins by giving a formal definition of ethics and then asks the respondents to rate the 14 statements that reflect on various work-place behaviours that may or may not be ethically correct on a Likert scale. The Likert items gave the respondents an option to categorize how they viewed the statements regarding various ethical and non ethical issues. The participants are asked to indicate how strongly they agree or disagree with the statement on a 5 point Likert scale. For example, they were given a Likert item that "If a colleague's email is open, it is okay to read his/her emails". They had the option to check "strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree." All 14 statements are not positively worded, in order to ensure validity of the respondent's answers. Each scale point is coded as "strongly agree," "agree", "neither agree nor disagree", "disagree" and "strongly disagree". Later a numeric value for statistical analysis will be allocated such that a value of 5 is given to "strongly agree" and 1 to "strongly disagree".

The next types of questions that follow consist of a mix of YES/NO and open text fields. The YES/NO questions measured whether respondents were previously taught about ethics or corporate social responsibility. Depending on the respondents' answer (Yes or No), they continue to the text field format that allows them to give personal choice instead of choosing from a list of items. If they have chosen YES, the participants are asked to name the educational institute that taught them about ethics

and to what extent they thought it was helpful in their work-life. If they have chosen NO, they move on to the next YES/NO question that measures whether the respondents considered prior-knowledge in the form of education to be useful before becoming professionals.

The final part of the questionnaire were in the form of multiple choice where answers to a number of 'in practice' statements are requested from the respondents. All four questions were borrowed from the ACE Practice Online Test Bank (e-businessethics.com, 2006) in order to maintain validity of computer ethics and test the respondents' knowledge of standard issues as prescribed by professional committees. The questions all pertain to on-the-job ethical dilemmas that employees may face and asks the respondents to choose the answer that best suits what they might do in that situation. Questions such as "Your coworker is copying company purchased software and taking it home. You know a certain program costs AED 2500 and you have been saving for a while to buy it. What do you do?" are asked with possible answers ranging from "You figure you can copy it too since nothing has ever happened to your coworker", "You tell your coworker he can't legally do this", "You report the matter to the ethics office" or "You mention this to your supervisor" to choose from. Depending on the questions, each answer is later given a numeric value to aid in statistical analysis. A value of 4 is given to the most appropriate answers (as prescribed by ACM standards) and a low point of 1 is given to the most inappropriate answers.

For the students' questionnaire (ref. Appendix B), the survey contains only two sections which correspond to the first and second part of the questionnaire for the professionals. The Demographic Information questions for the students include the respondents' grade/year in college, the high school/university they study in and their career interests. The purpose of this section is to examine if any demographic information is related to how the respondents react to ethics and ethical issues and to filter out students who are not veering into IT fields. All the responses are provided anonymously in order to protect the respondents' privacy.

Some of the statements vary depending on which group is being targeted. The first part for the students has only seven statements with Likert scale choices. It also has an additional question that allows respondents to choose from the given statements which ones they find to be ethical (respondents are allowed to choose more than one statement to ensure validity and increase the boundaries of the research). This part does not include the question that asks professionals to identify characteristics of an employee as they are students and are not expected to choose answer from experience. The second part on applications has statements such as "It is okay to download MP3 or movies from peer-to-peer websites" on a Likert scale response system which are different from some of the statements in the survey for the professionals.

4.1 Questionnaire Design

This study was conducted using survey methodology and follows the pre/post no control group format. The survey, which was conducted by the authors, was intended to examine student and employee awareness of ethics and ethical issues. The 219 students and 50 professionals filled out paper questionnaires; 19 questionnaires from the student depot were rejected as their career interests were not in the IT industry. Through the different sections in the questionnaire, the respondents were tested to see if they recognized attributes of ethics and professionalism. The next part gave the formal definition of ethics and then the respondents were asked to scale the

varying ethical issues. There were also many other variables that were tested to determine levels of awareness towards ethics attributes that may also affect respondents' behaviour to ethical issues (as described in the section above). Those answers that were qualitative in nature were assigned numerical values to quantitatively analyze the results. The questionnaire was designed specifically to collect initial and post ethical issue exposure opinions. There was no control group; each participant in each set answered the same questions in the same order.

4.2 Data Collection Process and Procedures

Upon an individual respondent's completion of a survey, their answers were collected through the use of an Excel file. Upon completion of the surveys, data was transferred into an SPSS file for analysis. Manual encoding was avoided in order to minimize error. 50 professionals and 219 students filled out a paper questionnaire. The questionnaire itself was built using Word processor. Data was collected manually. The data entered into the questionnaire were captured and ultimately exported into SPSS (a statistical software package for the social sciences) for analysis. The data entered was rechecked by the authors that minimized error as the respondents' exact answers were transferred directly two times by two persons in two separate occasions and then correlated.

5. Respondent description and level of ethical awareness

Due to time and monetary constraints, this study opted for a non-random, convenience sample. It was decided that a sample size of at least 50 employees and 219 students would be sufficient for statistical analysis. These sample sizes also allow for enough representation so that if statistical significance is found, projection can be made in more samples within the same population as these were drawn we would find results of the same magnitude. The questionnaires were distributed in high schools and companies and handled personally by the authors. Of these, as shown below in Tables 1 and 2, the employee depot had a good mix of respondents from beginner level to those who had completed over 8 years in service at various positions from programmers to system administrators, documentation officers and analysts. The six companies that were chosen included multi-national and local organizations

Table 1. Demographic distinction in employees

Company Category	Company Type	Number of Respondents
Software House	Multinational	19
Advertising Agency A	Local	6
Advertising Agency B	Multinational	10
Bank	Local	5
Government Subsidiary	Local	2
IT Retail Chain	Local	8

As for the student depot, 219 students from five high schools were selected at Grades 11 and 12. The schools chosen represented the Indian CBSE syllabus,

London-board GCE, GCSE and IGCSE syllabi. As shown in Table 3 and 4, most of the respondents chosen to sit for the survey were interested in pursuing career in IT; however, 19 questionnaires were rejected as, although the respondents were taking IT courses in their final year in school, they were not interested in going further in that field.

Table 2. Respondent Occupation and years in service

Occupation	1-3 yrs	4-7 yrs	8 and above
Programmer	8	7	2
IT Manager	0	5	2
System Administrator	2	8	1
Documentation Officer	3	1	0
IT Support	5	6	0

Table 3: Demographic representation of respondents

Syllabi	Frequency	Percentage
CBSE	94	47.00%
GCE	30	15.00%
GCSE	57	28.50%
IGCSE	19	9.50%
Total	200	100.00%

5.1 Student Awareness of Ethical Issues

The first part of the questionnaire, as described in the previous sections, extensively tests student awareness to the definition of ethics and its attributes. A 5-point Likert scale (5 = "Strongly Agree" to 1 = "Strongly Disagree") was used to measure the response for each statement. For the entire first section (consisting of seven statements) the mean percentage and the weighted average was calculated as shown in Table 4.

Table 4 shows the respondents' views as collected through the surveys. The data clearly indicates a sufficient knowledge of ethics and its attributes as perceived by the students. The "Strongly Agree" (30.84%) and "Agree" (29.30%) items for all the seven statements indicate a high enough understanding of the concepts of ethics and its definitions. Although there is a good 26.07% response that falls under "neither agree nor disagree", with a weighted average of "3.7" ("3" being the mid value for the Likert scale considered neither agree nor disagree), the score for the students is high enough to suggest a skew towards agreeing with the definitions of ethics and its attributes.

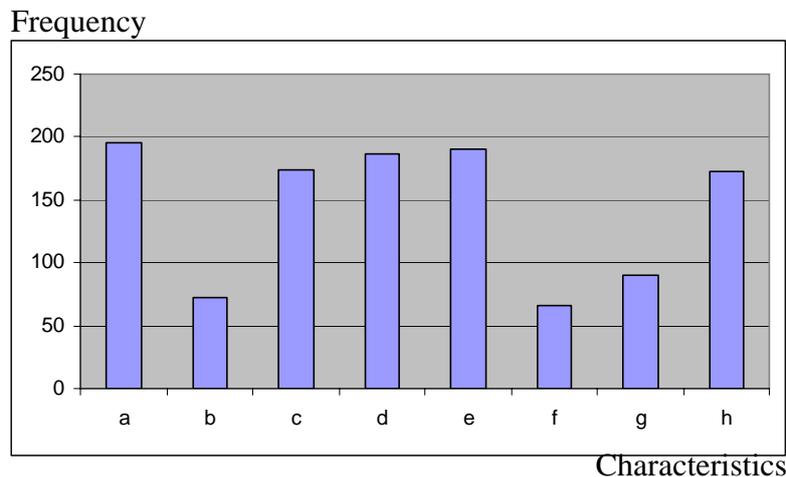
Table 4: Student awareness and response to ethics and ethical issues

	Part I	Part II
	What does ethics mean to you "In Theory" n=200	Ethics "In Practice" n=200

Strongly Agree	30.84%	12.13%
Agree	29.30%	17.13%
Neither agree nor disagree	26.07%	20%
Disagree	6.07%	20.80%
Strongly Disagree	7.69%	29.93%
Weighted Average (using Likert Scaling)	3.7	2.61

Looking at the question that asks the respondents to distinguish between ethical and non-ethical issues, however, there is a significant variation from the previously thought-of perception that students have of ethical issues. As shown in Graph 1 and Legend 1, the respondents' answers to the question of what makes an issue ethical veer towards morality and what is right or wrong. Whenever the word "morality" is used to describe a situation, the number of respondents to pick that answer dramatically increases. The statements "involves a matter of right or wrong" (87%), "involves morality, a code of morals, or morals questions" (93%), "[does not] involve violations of rights, freedom, justice, or morals" (95%), all have a high selection rate. This clearly shows that students are not actually aware of ethics, but rather of what they perceive to be ethics. This reestablishes what has been previously stated in this chapter and proven by McNamara (1999) and Velasquez, Andre, Shanks, J, and Meyer (2006) that the definition of ethics as perceived by students is shaky and not always accurate as the following statements show

- “Ethics has to do with what my feelings tell me is right or wrong
 - Ethics has to do with my religious beliefs
 - Being ethical is doing what the law requires
 - Ethics consists of the standards of behaviour our society accepts”
- Velasquez, Andre, Shanks, J, and Meyer (2006)



Graph 1: Bar chart representing student recognition of characteristics of ethical issues.

N/B: All the negative statements (marked in red in the Legend1) have been reversed along with the answers to give a positive response in the graph.

		Percentage
a	'involves harm/hurt/adverse effects on others',	98.00%
b	'affects people's lives or well-being'	36.00%
c	'involves a matter of right or wrong'	87.00%
d	'involves morality, a code of morals, or morals questions'	93.00%
e	'involves violations of rights, freedom, justice, or morals'	95.00%
f	'involves moral responsibility and is outside the law'	33.00%
g	'is interpretable in multiple ways, 'has no correct solution to it'	45.00%
h	'is decidable only by appeal to morals' etc	86.00%

Legend 1: Horizontal axis label for Graph 1

The second part of the questionnaire focuses on the response of students to various practical situations that may or may not be perceived as ethical by them. Once again, a 5-point Likert scale (5 = "Strongly Agree" to 1 = "Strongly Disagree") was used to measure the response for each statement. For the entire section (consisting of 15 statements) the mean percentage and the weighted average was calculated as shown in Table 4.

Referring back to Table 4, the results show the respondents' choices as collected through the surveys. The findings tend to support the previous deduction that the students' perception of ethics has less to do with its attributes and more to do with how they feel about morality, religion and the law. The Likert items "Neither agree nor disagree" (20%) "Disagree" (20.8%) and "Strongly Disagree" (29.93%) have the highest scores on selection (keeping in mind that the negative wordings have been rephrased and the findings reversed for statistical analysis). Looking closely at the statements themselves, the students seem to agree with what they have been explicitly taught as right or wrong, for instance, for statements such as "copying from text books for assignments without citation" were strongly disagreed by the students. This is because most schools teach students about referencing and citations such as the Harvard Referencing System which states "All statements, opinions, conclusions etc. taken from another writer's work should be cited, whether the work is directly quoted, paraphrased or summarized" (Holland, 2005). On the other hand, statements such as "It is okay to download music, movies and such" had high scores of "Strongly Agree" to "Agree".

Although the mean percentage for "Neither agree nor disagree" is almost the same as "Disagree", the weighted average for this section, which is a "2.61" is considered to be low when compared to the mid value of the Likert scale "3". Therefore, it is fair to deduce that students' awareness of ethical issues is low although they may appear to know what ethics and its attributes are.

5.2 Employee Awareness of Ethical Issues

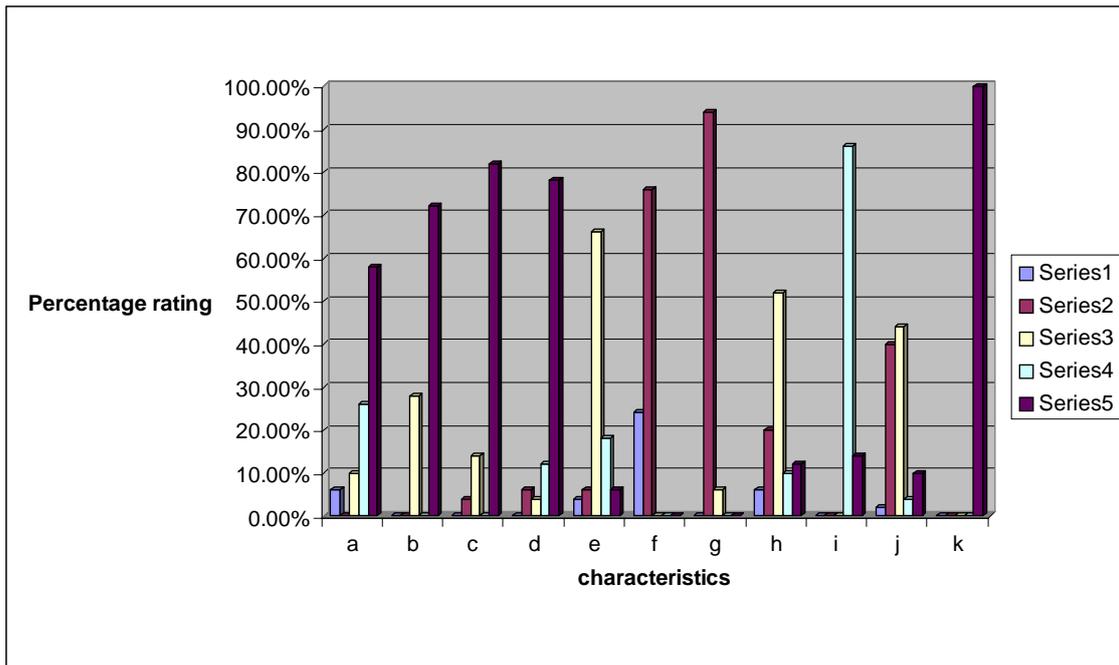
As described previously in the chapter, the questionnaire targeted at the employees was divided into three parts. Looking at the first part, as described in the previous sections, the statements extensively test employee awareness to the definition of ethics and its attributes, and professionalism. A 5-point Likert scale (5 = “Strongly Agree” to 1 = “Strongly Disagree”) was used to measure the response for each statement. For the entire first section (consisting of ten statements) the mean percentage and the weighted average was calculated as shown in Table 5.

Table 5 illustrates the respondents’ views as collected through the surveys. The data clearly indicates a good understanding of ethics and its attributes as perceived by the employees. The “Strongly Agree” (42.5%) and “Agree” (32.75%) items for all the ten statements indicate a very high understanding of the concepts of ethics and its definitions. Although there is a 14.88% response that falls under “neither agree nor disagree” (which is high in comparison to the other items “disagree” [5.75%] and “strongly disagree” [4%]), with a weighted average of “4.04” (“3” being the mid value for the Likert scale considered neither neither agree nor disagree), the score for the employees is high enough to suggest a strong skew towards agreeing with the definitions of ethics and its attributes.

Table 5: Employee awareness and response to ethics and ethical issues

	Part I What does ethics mean to you "In Theory" n=50	Part II Ethics "In Practice" n=50
strongly agree	42.50%	29.29%
agree	32.75%	21.43%
neither agree nor disagree	14.88%	12%
disagree	5.75%	19.71%
strongly disagree	4%	17.57%
Weighted Average (using Likert Scaling)	4.04	3.25

However, looking at the question that asks the respondents to rate non-technical characteristics that should be a part of being an “employee/employer”, the result varies significantly to the previous section, as can be seen in Graph 2 and Legend 2. The question asked the respondents to rate the various characteristics on a Likert numeric-value scale of 1 to 5 (“1” – lowest and “5” – highest). Each value can be distinguished as “Least Important”, “Slightly Important”, “Neither important nor unimportant”, “Important” and “Very Important”.



Graph 2: Employee rating of non-technical characteristics of an “employee”. The series represent the Likert scale (“1” – least important to “5” – most important)

Technical writing	a
Communications - speaking	b
Negotiating	c
Interacting with others effectively, be it boss, colleague or team	d
Courage	e
Integrity	f
Honesty	g
Fairness	h
Open-mindedness	i
Loyalty	j
Common sense	k

Legend 2: Horizontal axes table from Graph 2.

From Graph 2, it is easy to see that the characteristics such as Integrity (76% rating “2”) and Honesty (94% rating “2”) which are attributes of ethics, scored low on the rating scale. Majority of the respondents argued “slightly important” as non-technical characteristics of an employee. Also, the scores for Courage (“66%” rating “3”), Fairness (52% rating “3”) and Loyalty (44% rating “3”) illustrate majority unsure of whether these characteristics (which are typically ethical attributes) should be a part of being an employee.

On the other hand, characteristics such as Technical writing (58% rating “5”), Communications (72% rating “5”), Negotiating (82% rating “5”), Interacting with

others effectively, be it boss, colleague or team (78% rating “5”) and Open-mindedness (86% rating “4”) are all rated as “important” and “very important” characteristics to have as an employee.

It can be deduced from the findings that employees view professionalism slightly differently from ethics. To most of the respondents employees need to have more visual qualities such as communications and interactions, characteristics that can be “seen”; rather than ethical traits such as loyalty, fairness, honesty and integrity. This could be attributed to the misperception of ethics, especially at work places. As mentioned previously, and supported by McNamara (1999) and Velasquez, Andre, Shanks, J, and Meyer (2006), the employees seem to understand the concepts of ethics based on their prior knowledge which stem from beliefs, feelings and laws (McNamara, 1999). Henceforth, they do not see the ethical attributes as necessary characteristics of being a professional employee.

The second part of the questionnaire focuses on the response of employees to various practical situations that may or may not be perceived as ethical by them. Once again, a 5-point Likert scale (5 = “Strongly Agree” to 1 = “Strongly Disagree”) was used to measure the response for each statement. For the entire section (consisting of 14 statements) the mean percentage and the weighted average was calculated as shown previously in Table 5.

Referring back to Table 5, the results show the respondents’ choices as collected through the surveys. The findings tend to support the deductions from the first part that the employees do have good sense of ethics and ethical issues and how to react to them. The Likert items “Strongly Agree” (29.29%) and “Agree” (21.43%) have the highest scores on selection (keeping in mind that the negative wordings have been rephrased and the findings reversed for statistical analysis), showing that employees tend towards ethically correct actions.

Table 6: Employee response to ethical issues at various tiers

	Ethical issues at work n=50	Ethical Issues at home n=50	Ethics and the use of Internet n=50	Ethics or Aesthetic? n=50	Ethics and copyright n=50
strongly agree	48.29%	38%	28.00%	82%	12%
agree	21.71%	46%	28.00%	18%	16%
neither agree nor disagree	8.57%	10%	16.67%	0	24%
disagree	16.29%	6%	23.33%	0	27%

strongly disagree	5.14%	0	4.00%	0	21%
-------------------	-------	---	-------	---	-----

However, looking closely at the statements, the scenario changes dramatically. The 14 statements in the second section were grouped into further five categories to give: “Ethical Issues at Work”, “Ethical issues at home”, “Ethics and the use of Internet”, “Ethics or Aesthetics” and “Ethics and copyright” for further analysis. Then the mean frequency of each was calculated along with the percentage as shown in Table 6.

From Table 6 it can be seen that when the ethical issues relate to the work-environment, such as “In my organization we are encouraged/rewarded for being professional in our workplace” or “Ethics and professionalism are two sides of a coin”, the employees rigorously score for the correct action; giving a collective score of 48.29%. But, when the issue is brought home with statements such as “It is okay to download MP3 or movies from peer-to-peer websites while at home”, the respondents “strongly agree” to it also.

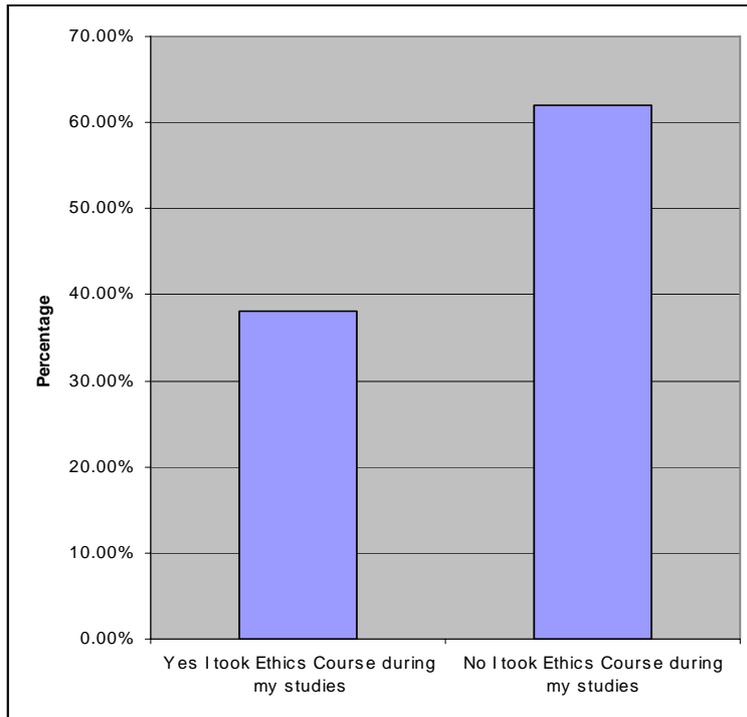
Further findings show that when the issue is relating to Internet, such as reading others’ emails, net surfing or using email for personal use, an equal percentage of the respondents chose “Strongly Agree” (28%) and “Agree” (28%).

Looking at the next category, it supports the previous findings that employees seem to value aesthetic attributes over ethical ones. The respondents scored a high percentage on “Strongly Agree” (82%) for statements such as “It is important to be a state-of-the-art technical expert than to be a good professional”.

Finally, the last category that looks closely at ethics and copyright support the deductions from the first part. Employees tend to “Strongly Disagree” (27%) when asked if “It is okay to download MP3 or movies from peer-to-peer websites while at work”. But, they also tend to disagree when they are asked if “It is okay to install copyright software that a friend has” which could relate to home or work environment.

The questions following part two in the questionnaire asked the respondents if they were taught about ethics in their years of education across secondary or tertiary levels.

The respondents had to answer either “yes” or “no”. Graph 3 illustrates the findings that show only 19 out of 50 respondents (38%) actually had formal education in ethics. Table 7 summarizes the countries where these 19 employees were educated (however, this will not be a focus for this chapter).



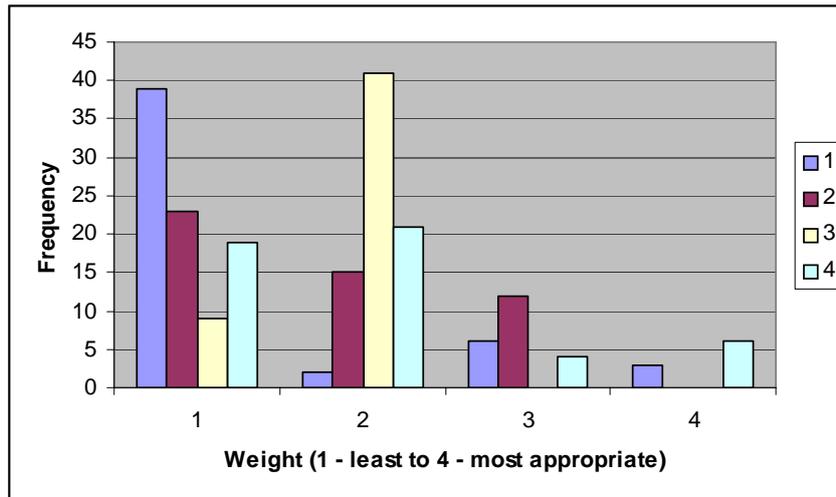
Graph 3: Measuring prior education involving ethics in employees

Table 7: Frequency of countries where respondents took ethics course during formal education (n = 19)

	Frequency	Percentage
United States of America	7	36.84%
Canada	5	26.32%
India	2	10.53%
UK	4	21.05%
UAE	1	5.26%

With these results, and looking at the findings from part two, it can be deduced that the strange variation in respondent scores to various ethical issues can be attributed to prior knowledge or education in ethics or ethical behaviour at work places. Along with McNamara (1999) misconceptions of ethics as proved by the results from part one, these results are clear indication that majority of the employees lack solid background knowledge of ethics and therefore seem to perceive ethics to apply only to “professional” environments. It also goes to show that issues relating to Internet usage are unclear to the respondents for the same reason. However, the results for ethics and copyright highlight the fact that because copyright is a major concern world-wide and widely publicized (for further reading, ref. <http://whatiscopyright.org/>), employees are well aware of the issue and therefore are able to distinguish right action from wrong due to prior-knowledge.

Part three of the employee questionnaire had four application multiple choice questions that were borrowed from the ACE Practice Online test bank (e-businessethics.com, 2006). The results from these were first tabulated and then rearranged to order them according to the ACE scale (“1” – least correct possibility to “4” – most correct possibility) for further statistical analysis. The result for each possibility is shown in Graph 4.



Graph 4: Respondent application result
(Legend value corresponds to the multiple choice questions from Part III of Appendix A)

Graph 4 shows the skew of respondents' choice towards unethical behaviour when practical situations are presented to them. The lowest point choices "1" and "2" are the most common choices for the employees. For questions such as "You work in the mailroom and suspect a colleague is using the Federal Express service for personal mail. What do you do?", 82% chose "You ignore the situation" as opposed to "You contact ethics". This shows an unusual tendency among employees towards unethical behaviour although the respondents showed a considerably high weighted average of 4.04 on the knowledge of ethics and its attributes, and 3.25 on the "in practice" statements from the previous parts (Table 5). This may be attributed to the previously stated reasons such as no prior-knowledge of ethical concepts or how and where they should be applied. Without formal education in corporate social responsibilities, it is seen that employees find it hard to differentiate between ethical and non-ethical issues when personal interests come to play.

When closely looking at the statements in part two, one particular statement "As an IT professional, I should follow standards set by professional organizations such as ACM, IEEE or ACS" that scored 46% seems void when looking at the findings from part three where the questions are borrowed from ACS bank. The deduction can then be made that employees may have heard of or know such professional bodies exist but do not or have not been exposed to or made aware of the standards set by these societies where ethics at work places are concerned. Once again, the fact that 62% of the respondents had no ethics component as a part of their formal education is taken as a major factor for such poor choice of behaviour in ethical situations.

5.3 Comparison between student and employee awareness

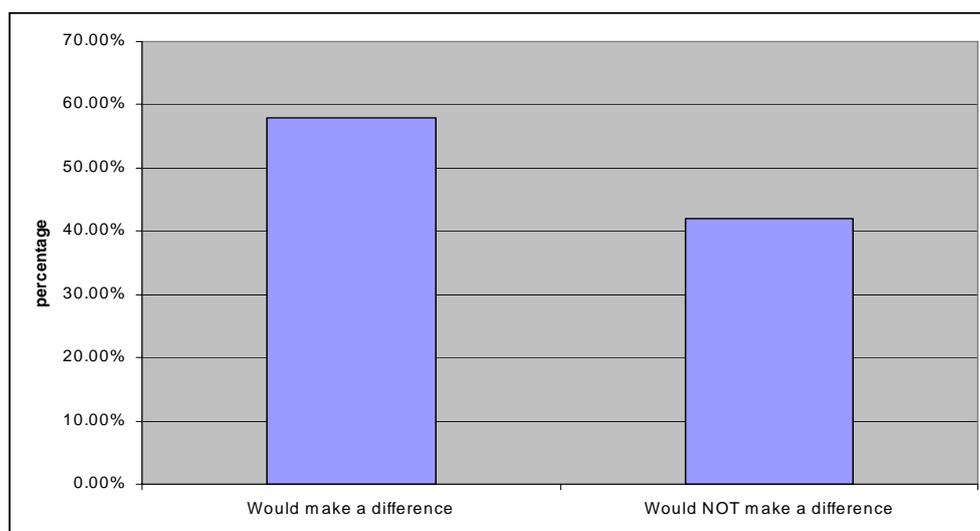
Referring back to Tables 4 and 5, when comparing the weighted average in the area of knowledge in ethics and ethic attributes, there does not seem to be a very large difference between students (3.7) and employees (4.04). Both agree to the definitions provided. However, the difference comes when looking at "in practice" results. The students score a low 2.61 whereas the employees score a 3.25. Although there may not seem a large gap between the two figures, since the Likert scaling system was in

place, the mid average for the scale is considered 3. Therefore, the students are in the lower hemisphere of the scale, leaning towards disagreeing whereas the employees are in the upper hemisphere skewing towards agreeing. However, it is deduced that the overall difference in the results is not significantly large as only 38% of the employees that were surveyed had been exposed to ethical issues and behaviours during the course of their education.

6. Professionalism and Ethics – so where is the link?

Ethics at work places have been topics of concern for many decades. As established previously, ethics in the field of information technology is nothing new. However, the growing problem of unethical practices at work places is costing organizations world-wide. At the same instance, the lack of awareness to ethical issues in student communities across nations is also adding to the costs (internetnews.com, 2003). From across corporations and governments, people are introducing new rules and standards that are meant to limit the damages. But the results are obviously not satisfactory. So what can be done to curb such behaviour? How can the world community at large increase both employee and student awareness to issues in the field of information technology that can be perceived as ethical or unethical? What active actions can be taken?

This chapter has presented a simple research into the area that has not been highlighted much – education. When asked if they thought it “would have made a difference to have been taught about ethics or corporate social responsibilities before the employees entered the job market, the respondents’ scores rated over 50% who agreed it would. As shown in the Graph 5, the YES/NO question gives a clear indication that even the employees realize the gap that exists between their education and their professional life. The chapter also highlights the misconception that students and employees harbour about professionalism and ethics, often merging the two and relating them to religion, feelings, law and the work environment, rather than to every-day life usage of information technology. It is therefore obvious that to reduce the gap between students’ and employees’ perception of professionalism and ethics is education



Graph 5: Employee opinion on effects of prior knowledge on application of ethics

7. Towards an ethically enlightened future...

As the twenty-first century roles into full swing, students are being exposed to new discoveries and latest technologies through the ever-changing and evolving curricula to keep up with the industry. At the same time, the IT professionals are getting to try their hands on these technologies. So what is the issue?

Technologies such as Intelligent Agents or “Bots” that are ‘piece of software that can autonomously accomplish a task for a person or other entity’ (Tavani, 2004) are the next generation intelligence that can ‘be sent out on a mission, usually to find information and report back’ (BotKnowledge, 2006). This can lead to security issues because, often enough, it is dealing with people’s personal information. Leak in the information can lead to spamming, loss of privacy, and identity theft (Mowbray, 2005). Other major technologies of concern such as surveillance and privacy have a fine line dividing them. Information privacy is defined as ‘an interest held by individuals regarding the control, and handling of data about themselves’ (Clarke, 1997) which leads to the matter of confidentiality - a situation where information has been imparted to another person in circumstances where the confidant is aware of the special nature of the communications - and secrecy - a blanket term used when disclosure of information is forbidden. Surveillance, on the other hand, is a technology that is primarily used to protect people and their belongings, but can often breach the privacy line.

‘The development of information technology and the Internet has dramatically increased the quantity of information available in digital form. This has resulted in a proliferation of uses of personal information. Some of these have major implications for the privacy of individuals’ (privacy.gov, 2006). To this effect, ‘In late 1980, the Organization for Economic Cooperation and Development issued a set of Guidelines concerning the privacy of personal records. Although broad, the OECD guidelines set up important standards for future governmental privacy rules’ (CDT.org, 2000). This is because discovery and introduction of such technology in the hands of ignorant users can be potentially harmful. This should then obviously be backed by education in the line of ethics pertaining to issues such as net usage, email privacy, data security, piracy and such starting from high school and followed through with in-depth courses dedicated to teaching computer ethics.

The courses can not just be confined to IT students. In today’s world, literacy and usage of information technology is no looked on as limited to computer students or IT professionals (Sackson, 1996). Managers at all levels in any organisation are dealing with vital and sensitive data, and need to be ethically aware of how to handle them without breaching any privacy laws. Students and employees, regardless of their background or future interests, should be made aware of the international guidelines that have been drawn up to curb unethical behaviour and thus reducing cost to organisations and peoples’ lives.

This chapter recommends a focus on and introduction of ethics as a part of formal education starting from high schools, where the students are first introduced to the world of information technology, and the education should intensify when the students move on to tertiary level, detailing various aspects of corporate social responsibilities and making them aware of ethical issues.

In the end, we are equipping IT and Engineering students with powerful technologies, such as Intelligent Agents and Nano technology (for further reading, ref. Wikipedia (2006)), that have the capacity to mass-destruct, and so we should equip them with the ethics to use them rightly for the good of mankind

8. References

- Oregon State Bar. (2005). Statement of Professionalism. Oregon. Available URL: <http://www.osbar.org/rulesregs/professionalism.htm>
- Mansueto Ventures. (2005). Employee theft still costing business. Available URL: <http://www.inc.com/articles/1999/05/13731.html>
- Webcontent Filters. (2005). Internet usage Statistics. Available URL: <http://www.cfsalesinc.com/employee-internet-usage.html>
- Bynum, T. (2001). Computer Ethics: Basic Concepts and Brief Overview. Available URL: <http://plato.stanford.edu/entries/ethics-computer/>
- Wiener, N. (1948). Cybernetics: or Control and Communication in the Animal and the Machine, Technology Press.
- Wiener, N. (1950/1954). The Human Use of Human Beings: Cybernetics and Society, Houghton Mifflin, 1950. (Second Edition Revised, Doubleday Anchor, 1954.)
- McNamara, C.(1999). Complete Guide to Ethics Management: An Ethics Toolkit for Managers. Available URL: <http://www.managementhelp.org/ethics/ethxgde.htm>
- Verschoor, C. C. (2005). Is there Financial value in Corporate Value?. Strategic Finance. 87, 1; ABI/INFORM Global pg 7.
- Velasquez, M., Andre, C., Shanks, T., J. S. and Meyer, M. J. (2006). What is Ethics. Available URL: <http://www.scu.edu/ethics/practicing/decision/thinking.html>
- Wikipedia, (2006). Definition of a Professional. Wikipedia The Free Encyclopedia. Available URL: <http://en.wikipedia.org/wiki/Professional>
- Gotterbarn, D. (2000). Computer Ethics: Responsibility Regained. Available URL: <http://csciwww.etsu.edu/gotterbarn/>
- Forcht, Karen A. (1991). Assessing the Ethical Standards and Policies in Computer-Based Environments. Ethical Issues in Information Systems. Boston: Boyd & Fraser. 56-69.
- Smith, L. (2005). Plagiarism Policy and Procedure. University of Wollongong in Dubai. Available URL: www.uowdubai.ac.ae/pelt
- ACM. (1992). ACM Codes of Ethics and Professional Conduct. ACM Council. Available URL: http://security.isu.edu/acm_ethics.htm
- ACS. (2005). Australian Computer Society Code of Ethics. Available URL: <http://www.acs.org.au/national/acsregs.htm#4>
- IEEE Board of Directors. (1990). IEEE Code of Ethics. Available URL: http://www.ieee.org/portal/site/mainsite/menuitem.818c0c39e85ef176fb2275875bac26c8/index.jsp?&pName=corp_level1&path=about/whatis&file=code.xml&xsl=generic.xsl
- FREEDOM. (2004). Introducing Ethics into the Computer World. Freedom magazine. Available URL: <http://www.scientology.org/goodman/ethics.htm>
- Lofton, L. (2004). Teaching ethics a growing need among healthcare professionals. Mississippi Business Journal. Available URL: http://www.findarticles.com/p/articles/mi_go1584/is_200407/ai_n6558454
- Harvey, B. (2005) Computer hacking and Ethics. University of California. Berkeley. Available URL: <http://www.cs.berkeley.edu/~bh/hackers.html>
- Wilson, M. J. (2004). Is hacking ethical? Computer World. Available URL: <http://www.computerworld.com/securitytopics/security/story/0,10801,91549,00.html>
- Palmer, C.C. (2001). Ethical hacking. Vol 40. No. 3. IBM Systems Journal. Available URL: <http://www.research.ibm.com/journal/sj/403/palmer.html>
- Kearney, C. (2005). Ex-AOL employee sentenced to 15 months in spam case: stole 92M e-mail screen names and sold them to a spammer. Reuters. Computer World. Available URL: <http://www.computerworld.com/securitytopics/security/privacy/story/0,10801,103991,00.html?source=x2105>

- Sackson, M. (1996). Computer Ethics: Are students concerned?. Available URL: <http://www.cs.luc.edu/ethics96/papers/sackson.doc>
- IEEE and ACM (2001). Computing Curricula 2001: Computer Science. Available URL: http://www.computer.org/portal/cms_docs_ieeecs/ieeecs/education/cc2001/cc2001.pdf
- e-businessethics.com. (2006). ACE Practice Tests. Business Ethics. 4th Ed. Available URL: http://college.hmco.com/cgi-bin/SaCGI.cgi/ace1app.cgi?FNC=AcePresent__Apresent_html___business_ferrellethics_01
- Holland, M. (2005). Citing References. Academic Services. Bournemouth University. Available URL: http://www.bournemouth.ac.uk/academic_services/documents/Library/Citing_References.pdf
- (2003). What is Copyright protection?. Available URL: <http://whatiscopyright.org/>
- Internetnews.com (2003). Study: Colleges a gateway to software piracy. Available URL: <http://www.internetnews.com/article.php/3078651>
- Tavani, H.T. (2004). Ethics & technology: Ethical issues in an age of information and communication technology. Hoboken, NJ: John Wiley and Sons.
- BotKnowledge. (2006). Both Knowledge. Available URL: <http://www.botknowledge.com/bkfaqs.html>
- Mowbray, M. (2005). Ethics for Bots. International Institute for Advanced Studies in Systems Research and Cybernetics. Available URL: <http://www.hpl.hp.com/techreports/2002/HPL-2002-48R1.pdf>
- Clarke, R. (1997). Introduction to Dataveillance and Information Privacy, and definitions of terms, Available URL: <http://www.anu.edu.au/people/Roger.Clarke/DV/Intro>
- Privacy.gov. (2006). Information Technology and Internet Usage. Available URL: <http://www.privacy.gov.au/internet/>
- CDT.org. (2000). Privacy Basics: OECD Guidelines. Available URL: <http://www.cdt.org/privacy/guide/basic/oecdguidelines.html>

APPENDIX 1

Professionalism and ethics [Professionals]

Please take a moment to fill in the below questionnaire as it is a part of a research study into professionalism and ethics in the IT industry. The survey maintains a level of confidentiality through anonymous-ness.

Thank you

Personal Details

Occupation:

Organization:

Years in Service:

Part I : "In Theory"

(for each of the following statements, please indicate the extent of your agreement or disagreement by placing a tick in the appropriate column)

		Strongly agree	agree	Neither agree or disagree	disagree	Strongly disagree
1	Ethics is a collection of values					
2	Ethics is a process of rational thinking aimed at establishing what values to hold and when to hold them					
3	Ethics attributes include Courage					
	Ethics attributes include Loyalty					

	Ethics attributes include Justice					
	Ethics attributes include Respect					
	Ethics attributes include Hope					
	Ethics attributes include Honesty					
	Ethics attributes include Love					
4	Ethics demands a willingness to change					
5	Poor ethics can be extremely damaging to organizational performance					
6	The key to good organizational ethics is awareness and real time detection (before the fact, not after)					
7	Organizations need ethics not only to prevent unhealthy behavior but to inspire superior reasoning and performance					
8	Professionalism can be defined as attitude					
9	Professionalism is the way an individual conducts oneself in certain situations					
10	Good ethics gives rise to good professionals					

11. How important are the following non-technical characteristics for an employee/employer? How would you rate the following characteristics on a scale from 1 to 5 (1 being the lowest and 5 being highest)?¹

(Please tick one number per characteristic)

		1	2	3	4	5
A	Technical writing					
B	Communications - speaking					
C	Negotiating					
D	Interacting with others effectively, be it boss, colleague or team					
E	Courage					
F	Integrity					
G	Honesty					
H	Fairness					
I	Open- mindedness					
J	Loyalty					
K	Common sense					

¹ Source: McGinn, R. R. (1999). *Expectations and Experiences of Ethical Issues in Engineering: A survey of Stanford Engineering Students and Practicing Engineers*. International Conference on Ethics in Engineering and Computer Science. Ohio. Available URL: <http://onlineethics.org/essays/education/mcginn.html>

Part II: “Concept Application”

If ethics is the study of fundamental principles that defines values and determines moral duty and obligation...

(for each of the following statements, please indicate the extent of your agreement or disagreement by placing a tick in the appropriate column)

		Strongly agree	agree	Neither agree or disagree	disagree	Strongly disagree
1	Ethics and professionalism are two sides of a coin					
2	It is important to be a state-of-the-art technical expert than to be a good professional					
3	It is okay to use the company internet facilities to send and receive personal emails					
4	It is okay to use the company internet facilities to surf the Net					
5	If a colleague's email is open, it is okay to read his/her emails					
6	It is okay to install a copywrite software that a friend has					
7	It is okay to download MP3 or movies from peer-to-peer ² websites while at work					
8	It is okay to download MP3 or movies from peer-to-peer websites while at home					
9	My organization promotes ethical behaviour in the workplace					
10	As a IT professional, I should follow standards set by professional organizations such as ACM, IEEE or ACS					
11	In general when I face ethical situations at work I handle them with					

² Peer-to-peer websites/applications run on a personal computer and share files with other users across the Internet. P2P networks work by connecting individual computers together to share files instead of having to go through a central server.

	professionalism					
12	In my organization we are encouraged/rewarded for being professional in our workplace					
13	In my organisation colleagues/bosses who have tried to deter/punish me for acting ethically					
14	I think IT students should be exposed to ethical issues during the course of their education to better equip them for their professional life					

15. Have you had any course that has taught you about ethics or corporate social responsibilities during your schooling/undergraduate/graduate level?

___ YES ___ NO

(if you have answered YES to the question 15, please move on to question 16. Otherwise, move to question 17)

16. What was the name of the course and where were you taught it?

17. In your opinion, would it have made a difference to have been taught about ethics or corporate social responsibilities before you entered the job market?

___ YES ___ NO

Part III: "In Practice"

*Below are some real-world situations borrowed from the ACM Test bank.
Please tick the answer that is the most appropriate according to you.*

1. Your coworker is copying company purchased software and taking it home. You know a certain program costs AED 2500 and you have been saving for a while to buy it. What do you do?

- A. You figure you can copy it too since nothing has ever happened to your coworker. (x1)
- B. You tell your coworker he can't legally do this. (x2)
- C. You report the matter to the ethics office. (x4)
- D. You mention this to your supervisor. (x3)

2. Your supervisor invited a group of employees and friends, you among them, out to dinner as his personal treat. Since you work in the finance department, you observed his petty cash voucher stating the same amount as reimbursement for purchase of a work related item and noting that the receipt was lost. What do you do?

- A. Inform your supervisor's boss. (x2)
- B. Do nothing. (x1)
- C. Explain the situation to the chief financial officer and let him investigate. (x3)
- D. Notify the ethics officer. (x4)

3. You work in the mailroom and suspect a colleague is using the Federal Express service for personal mail. What do you do?

- A. You ignore the situation. (x2)
- B. You start using Federal Express for personal mail, too, but only in an emergency. (x1)
- C. You contact ethics. (x4)
- D. You notify your supervisor. (x3)

4. While working for your company, you develop software that has a potential for making you wealthy. You used the company's software and test facilities but did the work on your own time. What do you do with your invention?

- A. Take it to the legal department for determination of ownership rights and appropriate disposition. (x4)
- B. See a local attorney and have him file for a patent in your name. (x2)
- C. Submit your program for consideration for award in your company's "ideas count" program. (x3)
- D. Contact those companies who would have interest in your program and sell it to the highest bidder. (x1)

Thank you for your time.

(Source: e-businessethics.com. (2006). ACE Practice Tests. Business Ethics. 4th Ed. Available URL: http://college.hmco.com/cgi-bin/SaCGI.cgi/ace1app.cgi?FNC=AcePresent_Apresent_html_business_ferrellethics_01)

Appendix B

Professionalism and ethics [Students]

Please take moment to fill in the below questionnaire as it is a part of a research study into professionalism and ethics in the IT industry. The survey maintains a level of confidentiality through anonymous-ness.

Thank you

Personal Details

Grade/Year: _____

—

High School/University: _____

Career interests:

Part I : “In Theory”

(for each of the following statements, please indicate the extent of your agreement or disagreement by placing a tick in the appropriate column)

		Strongly agree	agree	Neither agree or disagree	disagree	Strongly disagree
1	Ethics is a collection of values					
2	Ethics is a process of rational thinking aimed at establishing what values to hold and when to hold them					
3	Ethics attributes include Courage					
	Ethics attributes include Loyalty					
	Ethics attributes include Justice					

	Ethics attributes include Respect					
	Ethics attributes include Hope					
	Ethics attributes include Honesty					
	Ethics attributes include Love					
4	Ethics demands a willingness to change					
5	Poor ethics can be extremely damaging to organizational performance					
6	The key to good organizational ethics is awareness and real time detection (before the fact, not after)					
7	Organizations need ethics not only to prevent unhealthy behavior but to inspire superior reasoning and performance					

An issue is considered to be ethical if it³ ...

(please tick the answers you think fit best – can be more than one answer)

_____ 'involves harm/hurt/adverse effects on others',

_____ 'affects people's lives or well-being'

_____ 'involves a matter of right or wrong'

_____ 'involves morality, a code of morals, or morals questions'

_____ 'involves violations of rights, freedom, justice, or morals'

³ Source: McGinn, R. R. (1999). *Expectations and Experiences of Ethical Issues in Engineering: A survey of Stanford Engineering Students and Practicing Engineers*. International Conference on Ethics in Engineering and Computer Science. Ohio. Available URL: <http://onlineethics.org/essays/education/mcginn.html>

_____ 'involves moral responsibility and is outside the law'

_____ 'is interpretable in multiple ways, 'has no correct solution to it'

_____ 'is decidable only by appeal to morals' etc

Part II: “Concept Application”

If ethics is the study of fundamental principles that defines values and determines moral duty and obligation...

(for each of the following statements, please indicate the extent of your agreement or disagreement by placing a tick in the appropriate column)

		Strongly agree	agree	Neither agree or disagree	disagree	Strongly disagree
1	it is okay to share information among friends during tests or exams					
2	It is okay to copy from the website that has the required information for an assignment					
3	It is okay to Copy from a text book that has the required information for an assignment					
4	It is okay to Write in the information from what someone else says for an assignment					
5	It is okay to copy from another friend who has the information for an assignment					
6	All of the above points 2-5 but with due citations and reference list					
7	It is okay to install a copy write software given to me by a friend					

8	It is okay to download MP3 or movies from peer-to-peer ⁴ websites					
9	It is cool to buy pirated movies from vendors on the streets for AED 5/- instead of the original for more than AED40/-					
10	If I got a job/internship, I would have the right to use the office telephone to make personal calls					
11	If I got a job/internship, I would have the right to check my personal emails on the office computer					
12	My college studies are preparing me to behave ethically in my future professional life					
13	I believe that ethics is a concept that differs from country to country, race to race and religion to religion					
14	I believe teachers have taught me that there are clear and uniform standards of what is right and what is wrong					
15	'Anything goes' is a sure attitude to success					

Thank you for your time.

⁴ Peer-to-peer websites/applications run on a personal computer and share files with other users across the Internet. P2P networks work by connecting individual computers together to share files instead of having to go through a central server.



University of Wollongong in Dubai

UOWD Research Committee

Working Paper Series

Co-ordinator: Dr Melodena Stephens Balakrishnan

Administrative Support: Ms. Shalini Manghat, Mr Ivan Fernandes

WorkingPapers@uowdubai.ac.ae

University of Wollongong in Dubai

P.O. Box 20183

Dubai, UAE

Phone: (+ 971) 04 367 2400

Fax: (+ 971) 04 367 2760

Website: www.uowdubai.ac.ae/research

DISCLAIMER

The views and statements represented in this Working Paper are the views and statements of the author(s) and do not necessarily represent the views of the University of Wollongong in Dubai. The University of Wollongong in Dubai is not responsible for any loss, claim, liability, or damage related to the use of the information contained in this Working Paper, whether from errors or omissions in the content of the Working Paper. Furthermore, the University of Wollongong in Dubai makes no representations, express or implied, as to the accuracy of the information and data contained in this Working Paper, or as to the suitability of the said information and data for any particular purpose.

COPYRIGHT

This Working Paper and the information contained therein are protected by the United Arab Emirates and international copyright laws. The authors grant a non-exclusive licence to the University of Wollongong in Dubai to publish this Working Paper in full in the University of Wollongong in Dubai *Working Paper Series*. Any other usage by third parties is prohibited without the express permission of the authors.

