

Chapter XVIII

Computer Ethics: Scenes from a Computer Education Department in Turkey

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ABSTRACT

This chapter focuses on academic work on computer ethics conducted at a computer education department in Turkey. The chapter starts with the conceptual framework of computer ethics followed by the colleagues at the department, and mentions some scale development and administration papers. Along with research conducted at the department, applications of these researches in departments' courses are summarized. Then, implications of ethical practices for distance education are provided. Changes in the computing science along with those in distance education are considered to require distance education professionals to update their concepts and practices regarding integrity. Finally, future research directions, opportunities, and additional ideas regarding mentioned research and coursework are presented.

INTRODUCTION

When computer ethics is mentioned in Turkey, it is regarded double wise, that is, either the legal side

of computer use or a list of unethical behaviors occurring to one's mind are regarded. This chapter therefore focuses on a different area, academic work on computer ethics. Because ethics is a

rather esoteric subject, computer professionals usually find it difficult to study, so they choose to deal with the practical ethics mainly. However, starting from 1998, Turkey found a new platform for computer ethics studies. In 1998, the Turkish Higher Education Council opened new departments in education faculties of the universities in Turkey. These new departments are named Computer Education and Instructional Technology (CEIT). The basic aim of these departments is to equip students with up-to-date knowledge about computer and other information technologies, required for K-12 teachers. The departments combining the pedagogical knowledge with computer skills became unique standpoints for fields like computer ethics. In this chapter, we present academic work on computer ethics realized by one of these departments, Anadolu University, CEIT Department. When doing so, we prefer to classify the work as research and course work. Finally, implications of ethical endeavors for distance education practices are provided.

RESEARCH

The CEIT department at Anadolu University started working on conceptual framework of computer ethics at the very beginning of the 2000s. Odabasi and Can (2002) discussed the application of ethics to computer teaching, and suggested specifications for a scale after studying with 37 undergraduate students enrolled in the BTO 408 Computer and Internet Safety course. The study classified ethical principles, firstly those involving ethical demeanors that should be demonstrated by students as well as those involving responsibilities regarding computer and laboratory use. The study finalized with the recommendation that there should be robust scales to measure unethical computer using behaviors of Turkish undergraduate students.

Fortunately, Namlu and Odabasi (2007) developed the items further, generated new items

addressing several aspects of computer ethics, referred to expert opinions and produced the final version of the scale after administering it to 216 undergraduate students of computer technology. In the study, a robust factor analysis was conducted and unethical computer using behaviors of undergraduate students were classified under five categories, as intellectual property, social impact, safety and quality, net integrity and information integrity. Items in the first category, intellectual property, referred to the fact that information, unlike tangible property, was found hard to safeguard and hard to keep to one's self (Mason, 1986). Using unlicensed software, using crack programs, providing access to licensed software without authorization, copying and selling licensed software CDs, and distributing software licenses were instances of the first factor. The second factor of the scale, social impact, involved those items which were either socially chaotic or happened in social environments. Disturbing people in the virtual environments and using computers as means of blackmail are instances of the second factor. The third factor, safety and quality, involved items that were inclined to affect safety as well as influenced the quality of job that was carried out. Sample behaviors involve deliberately damaging the hardware of public computers, deliberately sending virus e-mails, accessing other peoples' personal computers and hacking through Internet. Items within the fourth dimension (i.e., net integrity) involved items that were corruptive for the integrity of the net, such as sending advertisement and chain mails for financial purposes. The last dimension, information integrity, involved behaviors such as misuse of information or things that disturb accessing information. Sample behaviors include plagiarizing other's software through small changes in the interface or using someone else's software as one's own by getting hold of the necessary codes. The study ended with the suggestion that unethical computer using behaviors should be studied under the light of several independent variables that

might affect unethical computer using behaviors of undergraduate students.

Bearing Namlu and Odabasi's (2007) suggestion in mind, Uysal (2006) scrutinized the views of teacher candidates in his MA thesis study. He administered the scale to 559 undergraduate students. He found out that students reported to be extremely ethical with regard to five factors mentioned by Namlu and Odabasi (2007). However, students' means was somewhat at an undesired level in terms of intellectual property and net integrity. An interesting finding was that males reported to demonstrate unethical computer using behaviors significantly more than females in terms of all factors at a probability value of .01 or below. Besides, he found significant differences among different departments in terms of information integrity. More specifically, graduates of the CEIT departments seemed to be at a worse situation in comparison to other departments in terms of information integrity. This finding might reveal that the more students use computers, the more unethical behaviors they are likely to demonstrate. The finding also suggests that there should be a higher emphasis on courses involving computer ethics in CEIT departments.

Previous studies revealed that unethical behaviors might vary with regard to gender (Underwood & Szabo, 2003) and program of study (McCabe & Trevino, 1997; Roberts, Anderson, & Yanish, 1997). Thus, findings of Uysal (2006) were expected. Underwood and Szabo (2003) further suggested an interrelationship among gender, frequency of Internet use, and maturity of students. Maturity of students was not a plausible variable for undergraduate students who had participated in the Uysal (2006) study. However, department, gender and PC experience were all applicable. Akbulut, Uysal, Odabasi, and Kuzu (2008b) scrutinized the dataset of Uysal (2006) and investigated whether gender, program of study and PC experience have an impact on ethical judgments of undergraduate students. The study also checked the relationships among

these independent variables through conducting a three-way ANOVA. The results indicated no significant differences among different programs of study and between high and low experienced PC users. The analysis showed significant differences between males and females. A significant interaction between the program of study and gender was found, that is, females' unethical computer behaviors were consistent across different fields while males' behaviors varied according to the field of study. This finding was interpreted in accordance with the gender socialization and occupational socialization theories that were tested in Mason and Mudrack's (1996) study. More specifically, gender socialization theory maintains that women are more likely to obey the rules of the society in order to socialize and accommodate the environment. On the other hand, occupational socialization theory claims that individuals behave in accordance with their occupation regardless of their gender. Findings supported gender socialization theory. However, the occupational socialization theory and gender socialization theory seemed to interact when the target gender is males.

With the increasing use of Internet and distance education practices in Turkey, the scope of computer ethics started to extend. Thus, the CEIT department started to scrutinize the conceptual framework of electronic misconduct, which involves the type of academic misdemeanors conducted in e-environments. The department focused on several aspects of e-misconduct. For instance, Birinci and Odabasi (2006) referred to the types and reasons of misdemeanors that occur in academic life. The study also made a special reference to Internet and made clear that academic dishonesty is made easier through e-environments. Odabasi et al. (2007) contributed to the ethics through a conceptual paper which focused on academic misconduct getting easier with Internet. Following this conceptual paper, Akbulut, Sendag, Birinci, Kilicer, Sahin, and Odabasi (2008a) prepared specifications for a

scale to measure academic dishonesty instances in open and distance education practices. While defining ethics, the unique context of Turkey was also taken into account. More specifically, definitions of unethical conducts were made through referring to scientific authorities in Turkey, including Anadolu University Scientific Ethics Guide (BEK, 2003) and The Scientific and Technological Research Council of Turkey (TUBITAK, 2006). The guide released by Anadolu University focused particularly on academic misdemeanors conducted in academic settings. The guide classified these misdemeanors in accordance with the context of unethical behavior. More specifically, unethical behaviors related to participant selection and sampling, research methodology and data analysis, publication and presentation, addressing contributing authors, acknowledging resources, editorship in peer-reviewed journals, article review process, committee memberships and advisory duties in dissertations were mentioned in the guide. The guide provided by TUBITAK (2006) also advises practitioners on different aspects of ethics. Based on these two guides, instances of academic misdemeanors realized through Internet were classified under the titles of fabrication, falsification, finagling, plagiarism, duplication, least publishable units, neglecting support and misusing credit.

Three hundred and forty nine education faculty students from the faculty of education were administered two Likert-Scale questionnaires developed by the researchers, one focusing on the instances of academic misdemeanors while the other focusing on the reasons of electronic misconduct. Results of two factor analyses on two questionnaires classified types of misdemeanors under the titles of fraudulence, plagiarism, falsification, delinquency and unauthorized help, while the reasons for misdemeanors were classified under the titles of individual reasons, institutional policies and peer pressure.

Aside from the above studies Sendag and Odabasi (2006) scrutinized on Internet and children, and provided suggestions to develop cyber-awareness for kids. Kilicer and Odabasi (2006) discussed why and how to teach ethics in terms of accuracy, property, accessibility and privacy (i.e., PAPA) in the field of computer teacher education. Uysal and Odabasi (2006) further developed the ways of teaching computer ethics to students through scrutinizing on different teaching and learning methods. Finally, another research team at the CEIT department translated Moor's (1985) classic paper "What is computer ethics." These studies constituted the conceptual framework for offering computer ethics courses at the department.

COURSE WORK

The department has been offering BTO 408 Computers and Internet Safety for 7 years. The course aims at equipping students with skills to detect harmful software, and set up and implement necessary programs to prevent network fraudulence. Besides, the course also involves legal arrangements regarding computer use and Internet use, along with social and ethical issues regarding computers.

Within the framework of the project called Open Distance Inter-University Synergies between Europe, Africa and Middle East (ODISEAME), the department has offered an online computer ethics course which involved trends and issues in computer ethics. The aim of the ODISEAME project has been to establish a network of Euro-Mediterranean higher education institutions that will cooperate in generating and disseminating contents for educational purposes. ODISEAME has particularly tried to improve higher education in partner countries by offering Web-based lessons corresponding to the higher education study programs. The course offered by the CEIT department has primarily dealt with

ethical foundations as a starting point. It explains why ethical issues are important for computer professionals. Life in cyber space and different ethical behavior models in the cyber world are also investigated with regard to privacy, accuracy, property and accessibility. Students and teachers from different countries took part in the project and several students have been offered the course starting from August 2005. All the relevant material such as readings, links, questions or related bibliography have been delivered online, that is, no hard copies have been available to students. Two practitioners of Web-based training who are also instructors at Anadolu University have moderated the course so far. The course was first piloted with the senior students of the department. Then, assessment of the units was realized through student and expert views. The first group to take the course consisted of eight graduate students who attended online classes between August 22, 2005, and October 2, 2005. Based on their suggestions, further modifications on the course content and methodology have been made.

Within the scope of the masters course named BTO509 Online Learning and Teaching Technologies, contents of the ODISEAME course were revised, and adapted for up-to-date Web-based training practices. Eleven doctorate students at the department contributed to this process by following the course books of Horton (2000) and Jochems, van Merriënboer, and Koper (2004). The unit will be ready by the end of the 2007 spring semester to be used in open and distance learning practices. Finally, the department aims to offer an online masters degree program in computer education and instructional technologies in which computer ethics will be one of the required courses. Most of the theoretical and practical details have been considered and a comprehensive proposal has been submitted to the Scientific and Technological Research Council of Turkey (TUBITAK), yet bureaucratic procedures to initiate the program continue.

IMPLICATIONS FOR DISTANCE EDUCATION

The impact of technology on both conventional classrooms and distance learning environments is considered to be enormous (Gearhart, 2001). Bennett (1998) suggests three scenarios for the future of teaching-learning endeavors. In the first scenario, it is maintained that the size of higher education institutions will shrink as global electronic educational opportunities increase. Campuses will be just service stations where several learning modules are made available to students at a distance. In the second scenario, it is claimed that the telecommunication revolution will have minimal influence on educational institutions. The third scenario suggests that higher education institutions will remain, but they will have altered educational roles involving higher emphasis on pedagogy and collaboration using innovative classrooms and laboratories. This scenario also suggests that significant amount of distance education will be realized but the conventional roles of residential institutions will continue. Gearhart (2001) believes that the third scenario is the most realistic one, while the first two seem unrealistic. However, we believe that the first scenario maintaining that all education might be realized at a distance is a realistic one as well. In Turkey, the Open Education Faculty of Anadolu University provides undergraduate degree distance education to approximately one third of all undergraduate students. Thus, it is crucial to update institutional policies in accordance with the diverse population we work with. In this respect, research conducted by the department on computer ethics and e-misconduct might be helpful.

It is more difficult for distance education students to deal with unethical behaviors than it is for conventional students. This is a double-sided problem. The first side involves practitioners' responsibility to provide equal and rich opportu-

nities for distance education students. Here, we would like to adapt The Code of Ethics presented by the Association for Educational Communications and Technology (AECT, 2005) to emphasize our responsibilities. The first principle of the first section states that professionals should encourage independent action in an individual's pursuit of learning and should provide open access to knowledge regardless of delivery medium or varying points of view of the knowledge. That means all learners should be provided with equal opportunities. Principle 7 states that in fulfilling obligations to the individual, professionals should provide current and sound professional practices in the appropriate use of technology in education. Principle 3 requires that in fulfilling obligations to the individual, the professionals should guarantee to each individual the opportunity to participate in any appropriate program. These two principles suggest that students be provided with learning materials suited to their needs. Moreover, students with special needs should be accommodated appropriately (Hall, 2007). If applied to distance education settings, all these principles place a crucial responsibility on practitioners in distance education, because it is harder to manage the teaching-learning endeavors in distance education practices. The second side of the problem involves students in demonstrating appropriate ethical behaviors in distance learning environments. Such delicate requirements can only be met with the help of practitioners who are equipped with necessary skills to demonstrate sound ethical demeanors in distance education. Graduates of the CEIT departments are employed as computer instructors and material developers in distance education environments as well. Thus, ethical endeavors of the department carries utmost importance for sustaining ethical standards in distance education practices.

One of the critical threats to sustaining academic integrity in distance education is the challenge to administer assessment appropriately. During online assessment, instructors are not able

to ascertain who is actually taking the test. In addition, instructors cannot control unauthorized use of additional resources. Finally, unauthorized collaboration of students cannot be prevented. Anadolu University administers conventional tests three times a year as a precaution. Olt (2002) proposes several strategies to minimize academic dishonesty in online assessment such as acknowledging disadvantages of unethical behaviors, taking necessary time to design effective online assessments, assigning original project-based assessments and providing students with a sound academic integrity policy. All precautions suggested in the literature require distance education institutions to employ professional staff who can understand and apply ethical endeavors properly. Thus, the CEIT department has a crucial role in training these professionals.

CONCLUSION

Distance education and open learning are likely to change the learning landscape forever. Computer science, which has a crucial place in distance education, is a rapidly changing field as well. These changes require distance education professionals to update their concepts and practices regarding integrity. No doubt that distance education practices have provided several advantages to individuals such as providing education to those who do not have the chance to come to traditional classrooms. Besides, the way students access to information sources, the way they are instructed and the way they are assessed have all improved. However, application of ethics in traditional face-to-face learning might not be applicable to open and distance learning environments. Individuals might have the inclination to demonstrate unethical demeanors because they do not have to threaten their faces in distance education environments. As indicated by a comprehensive and recent study, undergraduate students' inclination to demonstrate unethical behaviors increase over

the years (McCabe, 2005). Therefore, necessary precautions should be taken through following grounded policies and instructional processes.

FUTURE RESEARCH DIRECTIONS

The current paper summarizes research and coursework on computers and academic integrity realized at a CEIT department in Turkey. Department members aim to administer the developed scales to a larger population so that they will be able to see whether their hypotheses regarding computer ethics and electronic misconduct hold true. Besides, new courses and course contents are being offered each year to equip students with a thorough understanding of computer ethics. With the advent of an online MA degree on computer education and instructional technologies, the department will be able to share its experience with students around the world, and receive feedback from other practitioners in the field.

Surveys mentioned in the current study could be further validated and administered at several universities in order to investigate the organizational climate of Turkish universities in terms of computer and Internet ethics. The current study mostly focuses on unethical computer or Internet using behaviors of undergraduate students. The items covered in current surveys might not be applicable to graduate students, academicians and staff at other organizations. Developing new items through expert opinion and conducting the surveys at multiple universities and organizations can give further insights about the ethical practices observed at different contexts.

It is important to differentiate between what is ethical and what is legal in the academic context. While deciding what ethical or unethical behavior is, people rely mostly on their personal judgments (Kreie & Cronan, 2000). Besides, it has been indicated that disapproval of cheating among peers is an important variable to prevent cheating (Bowers, 1964). However, these personal

restraining mechanisms might not be sufficient to prevent unethical demeanors, that is, official precautions and well-developed sanctions might be necessary to prevent unethical behaviors. McCabe and Trevino (1993) underlined the importance of official precautions to prevent cheating. More specifically, 29% of students enrolling in schools with honor codes reported to have conducted academic misdemeanors while 53% of students enrolling in schools without honor code reported to conduct such behaviors. Thus, development of well-prepared honor codes like the one proposed by AECT (2005) is an important step in determining the ethical standards. Moreover, because different organizations and fields might involve different types of academic misdemeanors, studies particularly focusing on ethical standards in distance education are necessary for our field.

Finally, studies mentioned here mostly carry the characteristics of cross-sectional studies where data are collected at one shot. Besides, we have not examined the efficiency of our coursework on computer ethics on preventing unethical behaviors yet. In this respect, longitudinal studies, which explore the effectiveness of different precautions on preventing electronic misconduct, carry utmost importance.

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