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Investigation of relationship between preservice teachers' unethical computer using behavior and attitudes towards the using of internet

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Abstract

The aim of this study is determining the thoughts of preservice teachers regarding unethical computer usage behaviors and variables affecting these thoughts. Within the framework of this general aim, the relationship between the thoughts of their regarding unethical computer usage behavior and their attitudes intended for Internet usage, and whether their thoughts regarding unethical computer usage behavior differentiate according to the class they receive education, departments and gender have been examined. It is a descriptive study aiming to reveal an existing situation. The study data were collected by using a personal information questionnaire, Unethical Computer Using Behavior Scale, Attitude towards Internet Using Scale. The sample of the study is composed of 298 preservice teachers. According to the research results, it has been determined that thoughts of their regarding computer usage behaviors are ethical, and these thoughts differentiate according to gender, department and class. Moreover, a significant relationship between thoughts of their regarding unethical computer using behaviors and their attitudes about Internet usage has been found.

Keywords: Computer ethics; computer use; attitude towards using the Internet; preservice teacher

1. Introduction

In today's knowledge societies, rapid spread of information and communication technologies eased reaching information, sharing and storing information; and caused new paradigms, changing belief and values to occur (Kabakçı and Odabaşı, 2003). Moor (2004) defined this fast change as computer revolution and pointed out that this change brought together ethic problems, which could not be predicted before. At the start of the mentioned technologies, computer and Internet technologies come. Forester and Morrison (1992) also stated that computers create new problems, just like every new technology. The fact that computers are much more widespread and effective confronts computer ethics as an important concept. Because computer revolution has basic effects about how daily lives will be directed. Therefore, in order the computers to be controlled and knowledge flow to be realized effectively, technology needs to be shaped towards our benefits (Moor, 2004).

Ethics is a field of philosophy that has a study area of human attitudes and behaviors. It is a discipline that researches whether human behaviors are good or bad, right or wrong, and sees itself as the science of moral act (Kuzu, 2007). Computers are technologies that require application. Because of this reason, topic of computer ethics

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is being seen as part of applied ethics. Applied ethics are general studies that include all systematic efforts to understand and solve problems experienced in some areas of practical life (Pierce, 2002: Cited in Uysal and Şendağ, 2010). Computer ethics, which is the main topic of this study, is defined as a dynamic and complex study area that includes relationships between realities, conceptualizations, politics and values related to computer technologies (Moor, 1985). Concept of computer ethics has been kept separate from computer sociology and technology value, until 1990s. Lately however, computer ethics concept started to include applied ethics, computer sociology, technology value, computer crimes, and related areas by gaining a larger meaning; and philosophers, computer specialists, policy makers have focused on this concept (Kuzu, 2007). Together with the rapid spread of computer usage and occurrence of problems towards computer, computer ethics also transformed into a societal topic (Odabaşı and Uysal, 2007).

Mason (1986) analysis ethical problems of information era in four headings, as intellectual property, privacy, access and truth. Intellectual property, which means all kinds of products produced by our brains, is a problem that arises from the fact that individuals do not see digital knowledge in computer environment as a physical product and that they think they can use these information as they like. Intellectual property concept is a topic related to both law and ethics (Uysal and Şendağ, 2010). Privacy is a problem, which arises together with the growing capacity of computer technologies in areas like personal information access, storage and generalization; and increase of the value of information in decision making process (Mason, 1986). Especially production of harmful software and drawbacks about computer safety cause privacy problems to occur (Macachor, 2004: Cited in Odabaşı and Uysal, 2007; Mollavelioğlu, 2003). Access is a problem related to individuals' reaching information in computer and Internet environment and it is directly related to intellectual property problem. Because, together with the right to equally access information, intellectual property right necessary to reach or use information must be thought as a whole (Uysal and Şendağ, 2010). Truth on the other hand, is a problem about whether the information reached is trustworthy or not. Not looking at the information reached with a critical perspective, not questioning the truth of information and not examining alternative information sources cause such an ethical problem to occur (Uysal and Şendağ, 2010).

Ethical problems that information and communication technologies reveal may show themselves in education field, as well as any other fields, in which these technologies are frequently used. Different from other teaching tools, computer is a sophisticated tool that provides unique opportunities in terms of teaching and learning. The importance of computer and its most important characteristic that separates computer from other tools is the fact that it can be used as a production, teaching, administration, presentation and communication tool (Yalın, 2002). Usage of computer, which eases learning and teaching, with educational aims increases gradually (Kaya, 2005). Within the scope of 'Generic Teacher Competencies', performance indicators take place that indicate teachers' usage of information and communication technologies in the sub-fields of providing personal development, following and contributing to professional developments, preparing materials, arranging learning environments, behavior management, commenting data by analyzing them, and providing feedback about the improvement and learning of the student (MEB, 2006). In this situation, like other people who use computer, teachers will also face problems regarding computer ethics. Because of this reason, teachers need to show necessary attitudes and behaviors about computer ethics, and use computers within the framework of computer ethics rules. Because students are in continuous interaction with their teachers, they copy behaviors and attitudes that will be shown by their teachers (Uysal, 2006). It has been emphasized that teachers need to have a moral life that will be exemplary, not only with their excellent teaching skills, but also with their life styles. (Pieper, 1999: Cited in Uysal, 2006). In this respect, Ministry of National Education also emphasized the qualifications below about ethics and computer ethics among the performance indicators that teachers need to have, in the sub-qualification area of "Giving importance to national and universal values" within the framework of 'Generic Teacher Competencies' (MEB, 2006).

- In in and out of class studies, he/she adopts societal and professional ethic values and acts according to these.
- He/she knows legal and moral responsibilities about information and communication technologies and makes students gain these.

Moreover, one of the aims stated in Education Program Report prepared by Association for Computing Machinery (ACM) and Institute of Electrical Electronics Engineers (IEEE) Computer Society is the necessity to provide an environment, in which undergraduate students can notice ethical and societal problems about computer. It has been stated that this environment needs to follow application and theoretical developments, and enable people to notice professional standards, their superior and limited aspects unique to them (Uysal, 2006).

In this respect, it is being thought that determining thoughts of preservice teachers regarding unethical computer usage behaviors and examining variables affecting these thoughts are important. From this basic premise, what the thoughts of preservice teachers regarding unethical computer usage behaviors and what the variables affecting these thoughts are, compose the problem of this study.

In this study, it is being aimed to examine the thoughts of preservice teachers regarding unethical computer usage behaviors and the variables affecting these thoughts. Within the scope of this general aim, answers to the questions below have been searched:

1. Do the thoughts of preservice teachers regarding unethical computer usage behaviors differentiate according to departments, in which they receive education?
2. Do the thoughts of preservice teachers regarding unethical computer usage behaviors differentiate according to class level, in which they receive education?
3. Do the thoughts of preservice teachers regarding unethical computer usage behaviors differentiate according to their gender?
4. Is there a relationship between the thoughts of preservice teachers regarding unethical computer usage behaviors and their attitudes towards Internet usage?

2. Method

This study is a descriptive study, intended to determine the thoughts of preservice teachers regarding unethical computer usage behaviors and identify whether these thoughts are affected by some variables or not (Kaptan, 1998).

The study sample consists of a total of 298 preservice teachers in their 1st and 4th years of study in the Departments of Science Teacher Training, Primary School Teacher Training, Social Studies Teacher Training, and Turkish Teacher Training of the Faculty of Education at Ahi Evran University. The data were collected as a personal information form, Unethical Computer Usage Behaviors Scale and Attitude Scale Towards Internet Usage were used. Personal information form was used to identify the preservice teachers' departments, grade levels and gender. Unethical Computer Usage Behaviors Scale developed by Namlu and Odabaşı (2004) in order to determine the thoughts of preservice teachers regarding unethical computer using behaviors and that is composed of 60 items has been used. In the study done by Namlu and Odabaşı (2004), Alpha reliability coefficient of the scale, which is composed of five factors as intellectual property (15 items), social impact (18 items), safety and quality (14 items), net integrity (9 items) and information integrity (4 items), has been calculated as 0.96. In the data of this study done however, Alpha reliability coefficient of the scale has been calculated as 0.97. Data gathered from the scale have been graded as not appropriate at all - 1, not appropriate - 2, neutral - 3, appropriate - 4, very appropriate - 5. 60 is the lowest point that can be taken from the scale, whereas 300 points is the highest. Attitude Scale Towards Internet Usage developed by Tavşancıl and Keser (2002) in order to determine the attitudes of preservice teachers towards Internet usage, the scale which consists of 31 items, has been used. In the study done by Tavşancıl and Keser (2002), Alpha reliability coefficient of the scale has been calculated as 0.89. In the data of this study done however, Alpha reliability coefficient of the scale has been calculated as 0.87. Data gathered from the scale have been graded as strongly agree - 5, agree - 4, neither agree nor disagree - 3, disagree - 2, strongly disagree - 1. 31 is the lowest point that can be taken from the scale, whereas 155 points is the highest.

3. Results

The findings obtained from the study are discussed in order below under headings about the sub-problems attempted to be answered in the study.

3.1. Differentiation between the thoughts of preservice teachers regarding unethical computer usage behavior, according to their departments

Distribution of mean scores gathered from the unethical computer using behavior scale of preservice teachers, according to their departments that they receive education is presented in Table 1.

Table 1: Mean scores of thoughts of preservice teachers regarding unethical computer usage behavior according to the departments that they receive education

Departments	N	Mean ($\bar{X}$)	SD
Science Teacher Training	88	97.68	30.93
Primary School Teacher Training	75	102.56	30.34
Turkish Teacher Training	68	93.90	25.94
Social Studies Teacher Training	67	112.18	46.58
Total	298	101.31	34.45

General mean score gathered from the unethical computer using behavior scale is ($\bar{X}$=101.31) in Table 1. According to this finding, it can be stated that thoughts of preservice teachers regarding computer usage are ethical.

As seen in Table 1, when the mean scores gathered from unethical computer usage behavior of preservice teachers in terms of departments they receive education are analyzed; it has been seen that mean score of preservice teachers studying in Social Sciences Teacher Training Department are highest ($\bar{X}$=112.18), and mean score of preservice teachers studying in Department of Turkish Teacher Training are lowest ($\bar{X}$=93.90). Variance analysis results regarding whether the difference between mean scores is significant or not is presented in Table 2.

Table 2: Variance analysis results on the mean of thoughts of preservice teachers regarding unethical computer usage behavior; according to the departments they receive education

	Sum of squares	df	Mean squares	F	Sig.	Mean Difference
Between groups	12927.51	3	4309.17	3.73	0.01	3-4
Within groups	339623.7	294	1155.18			
Total	352551.2	297			p<0.05	

In Table 2, it has been seen that there is a significant difference between mean scores gathered from unethical computer using behavior scale of preservice teachers ($p<0.05$). As a result of the Scheffe test, which is done in order to determine from which group or groups the difference is caused from, it has been identified that the difference between mean scores of preservice teachers, who study in Social Sciences Teacher Training Department and Department of Turkish Teacher Training is important. According to this finding, it can be said that thoughts of preservice teachers studying in Department of Turkish Teacher Training are more ethical than preservice teachers studying in Social Sciences Teacher Training Department.

3.2. Differentiation between the thoughts of preservice teachers regarding unethical computer usage behavior, according to their gender

Distribution of mean scores gathered from the unethical computer using behavior scale of preservice teachers, according to their gender; and t test results regarding whether the difference between mean scores is significant or not are presented in Table 3.

Table 3: t test results related to the difference between unethical computer usage behaviors of preservice teachers according to their gender

Gender	N	Mean ($\bar{X}$)	SD	t	Sig.
Female	170	96.14	33.33	3.03	0.003
Male	128	108.17	34.85		p<0.05

In Table 3, mean scores gathered from unethical computer using behavior scale of preservice teachers have been viewed according to their gender; mean score of female preservice teachers have been found as ($\bar{X}$=96.14) and mean score of male preservice teachers have been found as ($\bar{X}$=108.17). The significance of the difference between mean scores has been looked at by t test and it has been seen that the difference between mean score is significant ($p<0.05$). According to this finding, it can be said that thoughts of female preservice teachers regarding computer usage behavior is more ethical than male preservice teachers.

3.3. Differentiation between the thoughts of preservice teachers regarding unethical computer usage behavior, according to their class level

Distribution of mean scores gathered from the unethical computer using behavior scale of preservice teachers, according to their class level; and t test results regarding whether the difference between mean scores is significant or not are presented in Table 4.

Table 4: t test results related to the difference between unethical computer usage behaviors of preservice teachers according to their class level

Class level	N	Mean ($\overline{X}$)	SD	t	Sig.
1st year	159	95.56	34.22	3.12	0.002 p<0.05
4th year	139	107.88	33.65		

In Table 4, mean scores gathered from unethical computer using behavior scale of preservice teachers have been viewed according to the class, in which they receive education; mean score of preservice teachers studying in first grade has been found as ($\overline{X}$=95.56) and mean score of preservice teachers studying in fourth grade has been found as ($\overline{X}$=107.88). According to this finding, it can be said that thoughts of preservice teachers studying in first grade regarding computer usage behavior is more ethical than preservice teachers studying in fourth grade.

3.4. Relationship between thoughts of preservice teachers regarding unethical computer usage behavior and their attitudes towards Internet usage

It has been determined that there is a negative direction significant relationship between mean scores gathered from unethical computer using behavior scale of preservice teachers and mean scores of their attitudes towards Internet usage ($p<0.05$, $r=+0.12$, $N=298$).

4. Conclusion

The results below are achieved in this study, in which the relationship between thoughts of preservice teachers regarding unethical computer usage behavior and their attitudes towards Internet usage is examined, and in which these are analyzed in terms of some variables.

It has been seen that thoughts of preservice teachers regarding computer usage behavior are ethical. In the researches done by Uysal (2006) and Erdem (2008), it has been stated that preservice teachers deliver opinion in a way appropriate to computer ethics.

It has been seen that thoughts of preservice teachers studying in Department of Turkish Teacher Training are more ethical than preservice teachers studying in Social Sciences Teacher Training Department. In the research done by Erdem (2008), it has been determined that thoughts of preservice teachers regarding unethical computer usage differentiate, according to the department of study, in intellectual property and quality factors of unethical computer usage behaviors. In terms of these two factors, it has been emphasized that thoughts of preservice teachers studying in Department of Primary School Teacher Training are more ethical than preservice teachers studying in Social Sciences Teacher Training Department. In social impact, net integrity and information integrity factors however, any differentiation according to the department of study has not been observed. In a research done by Uysal (2006), thoughts of preservice teachers regarding unethical computer usage behavior differentiated according to the department of study, in terms of network truth and information truth.

It has been seen that thoughts of female preservice teachers regarding computer usage behavior are more ethical than male preservice teachers. In the researches done by Uysal (2006) and Erdem (2008) also, it has been determined that thoughts of female preservice teachers regarding computer usage behavior are more ethical than male preservice teachers.

It has been seen that thoughts of preservice teachers studying in 1st grade regarding computer usage behavior are more ethical than preservice teachers studying in 4th grade. Erdem (2008) stated that ages of preservice teachers do not affect their ethical usage behaviors of information technologies. Uysal (2008) on the other hand, stated that only in intellectual property factor, ethical computer usage behavior of preservice teachers' decreases depending on the

increase in computer usage years. When thought from this perspective, it can be said that increase of ethical problems that preservice teachers studying in 4th grade face might be effective in the occurrence of this problem, because they used computers and Internet more.

A negative direction and low level of relationship has been found between thoughts of preservice teachers regarding unethical computer usage behaviors and their attitudes towards Internet usage. In other words, when the attitudes of preservice teachers towards Internet usage increase in a positive direction, their thoughts regarding computer usage behaviors become more ethical.

References

Erdem, Z. (2008). *Öğretmen adaylarının bilişim teknolojilerini kullanımlarının etik açıdan değerlendirilmesi*. Yayınlanmamış Yüksek Lisans Tezi. Dokuz Eylül Üniversitesi Eğitim Bilimleri Enstitüsü, İzmir.

Forester, T., & Morrison, P. (1992). *Computer ethics: Cautinary tales and ethical dilemmas in computing*. USA: Maple-Vail Incorparation.

Kabakçı, I. ve Odabaşı, H. F. (2003). Bilgi toplumunda altı şapkalı öğretmen. *Anadolu Üniversitesi Eğitim Fakültesi Dergisi,* 13(1), 97-103.

Kaptan, S. (1998). *Bilimsel Araştırma ve İstatistik Teknikleri*. Ankara: Tekışık Web Ofset Tesisleri.

Kaya, Z. (2005). *Öğretim Teknolojileri ve Materyal Geliştirme*. Ankara: PegemA Yayıncılık.

Kuzu, A. (2007). Bilişim sistemleri güvenliği ve ilgili etik kavramlar. İçinde A. Güneş (Ed.), *Bilgisayar I – II*. Ankara: PegemA Yayıncılık.

Macachor, S. (2004). The impact of computer on society. *Minnesota Futurists*, 28(1/2), 90-91.

Mason, R O. (1986). Four ethical issues of information age. *MIS Quarterly,* 10(1), 5-11.

Milli Eğitim Bakanlığı (MEB), Öğretmen Yetiştirme ve Eğitimi Genel Müdürlüğü (2006). *Öğretmenlik mesleği genel yeterlikleri*, Ankara: Milli Eğitim Basımevi.

Mollavelioğlu, M. Ş. (2003). *Küçük ve orta ölçekli işletmelerde bilgi teknolojilerinin etik kullanımı ve bir uygulama*. Yayınlanmamış Yüksek Lisans Tezi. Atatürk Üniversitesi Sosyal Bilimler Enstitüsü, Erzurum.

Moor, J. H. (1985). What is computer ethics?. *Journal of Metaphilosopy*, 16(4). 266-275.

Moor, J. H. (2004). Reason, relativity and responsibility in computer ethics. In T. W. Bynum & S. Rogerson (Eds.), *Computer Ethics and Professional Responsibility*. Blackwell Publishing.

Morris, D. (2010). E-confidence or incompetence: Are teachers ready to teach in the 21st century?. *World Journal on Educational Technology, 2*(2), 142-155.

Namlu, A. G. & Odabası, H. F. (2007). Unethical computer using behavior scale: A study of reliability and validity on Turkish university students. *Computers & Education*, 48, 205–215.

Odabaşı, H. F. ve Uysal, Ö. (2007). Bilgisayar etiği ile ilgili konular. *7th International Educational Technology Conference*, 03-05 May 2007, Near East University. Cyprus.

Pieper, A. (1999). *Etiğe giriş*. Çeviren: Atayman, V. Ve Sezer, G. İstanbul: Ayrıntı Yayınları.

Pierce, A. (1999). *Applied ethics values clarity and decision quality*. Unpublished Doctoral Deissertation, Gongaza University School of Professional Studies and Graduate School, Washington.

Tavşancıl, E. ve Keser, H. (2002). İnternet kullanımına yönelik likert tipi bir tutum ölçeğinin geliştirilmesi. *Eğitim Bilimleri ve Uygulama*, 1, 79-100.

Uysal, Ö. (2006). *Öğretmen adaylarının bilgisayar etiğine ilişkin görüşleri*. Yayınlanmamış Yüksek Lisans Tezi. Anadolu Üniversitesi Eğitim Bilimleri Enstitüsü, Eskişehir.

Uysal, Ö. ve Şendağ, S. (2010). Bilgisayar etiğinde dönüşümler. İçinde H. F. Odabaşı (Ed.), *Bilgi ve İletişim Teknolojileri Işığında Dönüşümler*. Ankara: Nobel Yayın Dağıtım.

Yalın, H. İ. (2002). *Öğretim Teknolojileri ve Materyal Geliştirme*. 7. Baskı, Ankara: Nobel Yayın Dağıtım.