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E-Learning Management System: Students' Views about Influence of Computer and Internet on Health

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Abstract

In today's world of developing technology, which has spread the use of the Internet and the computer to reach the necessary information, determining the effects of these two tools on individuals' health could allow preventing possible future problems. Considering the fact the Internet and computer are now commonly used as an educational tool, the effects of these tools on human health should be determined via scientific research. The results to be obtained should be presented to users of these tools to overcome the related deficiencies, if any. The present study was designed in line with the feedback provided by preservice teachers who are likely to use these technologies in their future professional lives. The participants of the study were 453 preservice teachers attending Ziya Gokalp Education Faculty at Dicle University. In the study, a scale developed by Ozmutaf, Ozgur and Gokmen (2008) was applied to the preservice teachers in online environment. The results revealed that the participants' use of the Internet and computer had effects on human health; that the effects significantly differed with respect to the variable of gender ($p < .05$); and that the effects did not differ depending on the participants' age or on their department.

Keywords: e-learning, ergonomic, computer and Internet use;

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1. Introduction

Developments in technology have important effects not only on a number of areas in human life but also on the field of education. Thanks to technological developments, two important technological tools, the Internet and computer, have been introduced to the teaching and learning environments (Taspinar & Tuncer, 2008). As a result of the use of computer and Internet technologies in distance education for educational purposes, it could be stated that distance education, which started with letters and radio broadcasts at the beginning, has become Internet-based today (Yalin, 2008). In this process of rapidly developing technology, online learning and teaching could be said to be a necessity (Oncu & Cakir, 2011). Distance education and e-learning are key concepts for the development of European information society (Commission of the European Communities, 2003).

Distance education is an instructional system which provides students with the opportunity to access education; which increases current learning opportunities for students; which makes use of current technologies and involves new technologies in the process; and which helps establish connection between educational contents and students (CDLP, 2004). Distance education can also be referred to as making education accessible for students with the help of certain technologies despite the geographical distance between teachers and students (USDLA, 2009). Today, as the structures of Mass Open Online Course and Open Educational Resources developed thanks to the Internet, the amount and quality of learning increased independently of time and place (Watson and Watson, 2014). In addition, an education system which involves the use of an online environment and information and communication technologies is economical in terms of both cost and time (Yalman, 2013; Karasar, 2004). The most important benefit of distance education is its contribution to cooperation besides overcoming the restrictions of online structures in relation to time and place. In this way, more individuals will be reached than in face-to-face communication, which will increase cooperation (Karasar, 2004; Beatty & Nunan, 2004).

There are a number of advantages of distance education such as making it possible to give education to any student in any place at any time; facilitating cooperation, global awareness and constructivist pedagogy; supporting the 21st century skills; meeting students' individual needs; providing personal learning experiences; and allowing practicing (USDLA, 2009). Besides these advantages, it could be stated that several health problems occur due to inappropriate and insensible use of computer and Internet technologies in distance education.

One cause of health problems that occur as a result of inappropriate use of computer and Internet technologies is disobedience to ergonomic rules (Ulusam, Kurt & Dulgeroglu, 2001). In distance education applications, ergonomics has two sub-headings: physical environment that students belong to and the user interface in computers (Yildirim & Akalp, 2011). Regarding these two sub-headings, it could be stated that ergonomic problems have influence on individuals' health. Ergonomic problems could cause students to suffer from certain diseases in their musculoskeletal systems (Ulusam, Kurt & Dulgeroglu, 2001). Ergonomic problems could also trigger physical problems (eye, neck, waist, arm, hand, wrist, finger and so on) and psychological problems (nervousness, stress and so on) (Gun, Ozer, Ekinci & Ozturk, 2004; Ozmutaf, Ozgur & Gokmen, 2008). Therefore, health problems to be experienced by individuals due to inappropriate use of computer and Internet technologies could have negative influence on the benefits of distance education or cause students to develop negative attitudes towards the distance education system. For this reason, the views of students taking courses in distance education system about the effects of computer and Internet use on their physical and psychological health are fairly important.

The present study tried to examine the health problems experienced by students taking courses in e-learning system and to determine their views about the effects of computer and Internet use on their health. In line with this purpose, the following research question was directed: What are university students' views about the effects of their computer and Internet use on their physical and psychological health?

2. Method

This part of the study presents the research model used in the study, the research sample, the data collection tool and the statistical methods and techniques applied for data analysis.

2.1 Research model

In the study, the survey model, one of quantitative research designs, was used. Survey studies aim at revealing and describing a certain situation and require examining the research variables in their natural settings (Karasar, 2012). In other words, survey studies can also be defined as studies which help determine participants' views, interests, skills and/or attitudes regarding a certain subject or phenomena and which describe a current situation (Buyukozturk, Cakmak, Akgun, Karadeniz & Demirel, 2014).

2.2 Universe and Sample

The research universe was made up of preservice teachers attending Ziya Gokalp Education Faculty at Dicle University in the academic year of 2014-2015. In the study, the research sample was determined with the purposeful sampling method, one of non-random sampling methods. As a result, a total of 453 preservice teachers taking the face-to-face course of Computer and taking online courses in distance education system constituted the research sample in the study. Table 1 presents information about the participants' gender and about their departments.

Table 1. Frequency and percentage distributions of the students with respect to their gender and departments

	f	%
GENDER		
Male	105	23,18
Female	348	76,82
DEPARTMENT		
Pre-school Teaching	103	22,74
Elementary School Teaching	111	24,50
German Language Teaching	56	12,36
Turkish Language Teaching	80	17,66
Elementary School Math Teaching	67	14,79
Secondary School Math Teaching	36	7,95
TOTAL	453	100

Of all the participants, 23,18% of them were male, and 76,82% of them were female. As for the departments of the participants, 22,74% of them belonged to the department of Preschool Teaching, 24,50% of them to Elementary School Teaching, 12,36% of them to German Language Teaching, 17,66% of them to Turkish Language Teaching, 14,79% of them to Elementary School Mathematics Teaching, and 7,95% of them belonged to the department of Secondary School Mathematics Teaching.

2.3 Data collection tool and data collection

As the data collection tool, a scale developed by Ozmutaf, Ozgur and Gokmen (2008) was applied to the preservice teachers in online environment. The scale used in the study was made up of two parts: The first part was related to the participants' demographic backgrounds, and the second part included 10 items in relation to the research question.

2.4 Data analysis methods

For the analysis of the data collected via the questionnaire, the package software of SPSS was used. The questionnaire items related to computer and Internet use were rated as "I Completely Disagree" (1), "I Disagree" (2), "I am Neutral" (3), "I Agree" (4) and "I Completely Agree" (5). The ranges of the mean scores regarding the participants' responses were as follows: mean scores between 1,00-1,80 referred to "I Completely Disagree"; those between 1,81-2,60 to "I Disagree"; those between 2,61-3,40 to "I am Neutral "; those between 3,41-4,20 to "I Agree "; and those between 4,21-5,00 referred to "I Completely Agree". The Cronbach Alpha reliability coefficient for the preservice teachers' responses to the questionnaire items related to the effects of computer use on health was calculated as 0,66. The views of the preservice teachers were analyzed with t-test to see whether there was a significant difference between the groups with respect to gender. In addition, for the purpose of determining whether there was a significant difference in terms of the variables of age and department, ANOVA was conducted.

3. Finding

In this part of the study, the findings obtained as a result of the analysis of the data are presented in Tables. In the study, which aimed at determining the influence of computer and Internet use on individuals' health, the mean scores related to the participants' responses to the questionnaire items were found to be at the level of "I am Neutral" (\bar{X} = 2,63).

Table 2. t-Test Results for the participants' mean scores regarding health with respect to Gender

Gender	N	\bar{X}	Ss	Sd	t	p
Female	348	2,58	0,50			
Male	105	2,80	0,48	451	-4,071	.000

p<.05

In the study, the influence of the participants' use of the Internet and computer on health was found significant with respect to the variable of gender (p= .000). The t-test results revealed that the female preservice teachers' mean score was MeanF=2,58, (Ss=0,50) and the mean score of the male preservice teachers was MeanM=2,80 (Ss=0.48). It was found that this significant difference was in favor of the male participants.

Table 3 presents the frequency and percentage distributions of the participants with respect to the variable of age.

Table 3. Frequency and percentage distributions of the participants with respect to age

Age	f	%
18-20 Age	251	55,41
21-23 Age	131	28,92
24 and older	71	15,67
TOTAL	453	100

It was found that the distributions of the participants in terms of the variable of age were 55,41% for those aged between 18-20, 28,92% for those aged between 21-23 and 15,67% for those aged 24 or older.

Table 4. ANOVA results for the participants' mean scores regarding health with respect to their age

Source of Variance	Sum of Squares	sd	Mean Squares	F	p
Between groups	,139	2	,070	,276	.759
Within groups	113,557	450	,252		
Total	113,696	452			

p<.05

The results also revealed that the participants' mean scores regarding the influence of their computer and Internet use on health were not significant between the age groups at the significance level of p=.759.

Table 5. ANOVA results for the participants' mean scores regarding health with respect to their department

Source of Variance	Sum of Squares	sd	Mean Squares	F	p
Between groups	,572	2	,114	,452	.812
Within groups	113,125	447	,253		
Total	113,696	452			

p<.05

The participants' views about the influence of their computer and Internet use on health revealed no significant difference with respect to their departments at the significance level of p=.812.

Table 6 presents the questionnaire items and the mean scores of the preservice teachers' responses to the items.

Table 6. Mean scores and standard deviations regarding the influence of computer and Internet use on health according to the questionnaire items

Questionnaire Items	\bar{X}	Sd
It has no negative influence on my physical health	2,18	,049
I don't feel any pain in my body	2,26	,050
It has positive influence on my psychology	2,69	,048
It increases my happiness	3,06	,049
It increases my interests in health-related subjects	3,83	,038
I make me patient	2,54	,048
It doesn't tire my brain or my eyes	1,49	,033
It helps me spend my time entertainingly	3,32	,051
It doesn't cause me to develop a habit of eating junk food	2,24	,053
I smoke less when I use it	2,71	,047

The preservice teachers' responses to the questionnaire items revealed that the mean scores regarding the influence of computer and Internet use on health were $\bar{X}= 2,18$ for the item of "It has no negative influence on my physical health", $\bar{X}= 2,26$ for the item of "I don't feel any pain in my body", $\bar{X}= 2,69$ for the item of "It has positive influence on my psychology", $\bar{X}= 3,06$ for the item of "It increases my happiness", $\bar{X}= 3,83$ for the item of "It increases my interests in health-related subjects", $\bar{X}= 2,54$ for the item of "It makes me patient", $\bar{X}= 1,49$ for the item of "It doesn't tire my brain or my eyes", $\bar{X}= 3,32$ for the item of "It helps me spend my time entertainingly", $\bar{X}= 2,24$ for the item of "It doesn't cause me to develop a habit of eating junk food" and $\bar{X}= 2,71$ for the item of "I smoke less when I use it".

4. Discussion and Conclusion

In the present study, which was conducted to determine the effects of preservice teachers' use of the computer and Internet on their health, the mean score for the questionnaire items was found to be at the level of "I am Neutral" ($\bar{X}= 2,65$). In this respect, it could be stated that the preservice teachers did not think their use of the computer and Internet had direct influence on their health. In one study conducted on computer users' complaints about professional musculoskeletal disorders and on ergonomics, Dogan and colleagues (2011) reported that musculoskeletal problems experienced by computer users depended on a number of factors; that the most important factors included not only personal factors like working for long hours, giving not enough breaks, age, gender and life style but also other risk factors such as distance of the screen and the lack of comfort of the chair. In addition, Ulusam and colleagues (2001), in their study with computer users with cumulative traumatic disorders, focused on the health problems likely to be experienced by computer users due to computer use. Within the scope of the present study, the participants' responses to the questionnaire items revealed that computer and Internet use had negative effects on physical and psychological health.

In the study, a significant difference was found between the mean scores of the female and male the preservice teachers participating in the study in favor of the male participants. The female participants' mean score regarding computer and Internet use was found to be at the level of "I Disagree" ($\bar{X}= 2,53$), while it was at the level of "I am Neutral" for the male participants ($\bar{X}= 2,80$). In one study on technology and women's health, Erenel and colleagues (2011) reported that women suffer from such disorders due to computer use as headache, eye fatigue, carpal tunnel syndrome and other waist and back illnesses. In addition, in today's world of increased Internet use, it could not only facilitate life for women but also result in social consequences for women (Bolukbas & Yildiz, 2005).

According to the results of Research on Household Information Technology Use conducted by Turkish Statistical Institute, the rate of computer users in Turkey was 54,8%, and the rate of Internet users was 55,9% (TUİK, 2015). Parallel to the increasing use of the computer and Internet at universities, determining the influence of these technologies on students' health is important to reveal the problems likely to be experienced depending on the use of these technologies. In this respect, the results of ANOVA conducted to determine the influence of students' use of the computer and Internet on their health revealed no significant difference with respect to their departments. Ozmutaf, Ozgur and Gokmen (2008), in their study focusing on university students' viewpoints regarding computer use in terms of their health, found that the variables of gender and department caused differences in the students' viewpoints with respect to certain questionnaire items.

The participants' use of the computer and Internet differed significantly depending on their age in terms of the influence of computer and Internet use on their health. Researchers reported an increase in health problems experienced by computer and Internet users with respect to their age and the time they spent on computer and Internet use. Gun, Ozer, Ekinici and Ozturk (2004), in their study examining both computer use of individuals working with the computer and the health problems experienced by these individuals, found that musculoskeletal problems, visual disorders and psychological problems increased in line with the increasing amount of daily use of the computer. In another study on ergonomic profiles of distance education students, Ozkara and colleagues (2013)

reported that 60% of the participants did not pay attention to correct position of sitting and that one of the participants working in banking sector was likely to experience serious health problems if he did not pay attention to ergonomic factors. In general, it was revealed that the participants did not have awareness of ergonomics.

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