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The Eurasia Proceedings of Educational & Social Sciences (EPESS), 2016

Volume 4, Pages 508-518

**ICEMST 2016: International Conference on Education in Mathematics, Science & Technology**

## **MIDDLE AND SECONDARY SCHOOL STUDENTS' APPROACHES TO COMPUTER AND INTERNET**

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**ABSTRACT:** The aim of this qualitative study is to determine middle and secondary school students' approaches related to computers and internet. To achieve this aim a form consisted of 8 open-ended questions was used. The implementation was carried out to 322 middle school and 161 secondary school students in Trabzon and Giresun cities on 2015-2016 school year. It was tried to determine understandings of students related to computer and internet, their computer program and internet sites preferences, the difficulties they have in computer and internet usage, and their suggestions regarding effective usage of computer and internet. The qualitative data obtained were analyzed by content analysis and descriptive analysis methods. Data obtained showed that students saw computer mostly as a tool for amusement and a tool which helped to lessons and they saw internet as the fastest way to reach information and a communication way, they used office programs in computers and preferred communication sites. Also, it was determined that students had some problems in computer and internet usage arising from themselves, others, computers, and internet. Thus, they thought that there had to be in-service training courses related to these problems. Some suggestions were given to students, families, and institutions to make students benefit from computer and internet more effectively.

**Key words:** Computer usage, internet usage, middle school students, secondary school students

### **INTRODUCTION**

Computer and internet technologies are extensively utilized by almost all industries in our contemporary world. It has been observed that utilization areas of technologies have expanded dramatically; and mean user age has decreased remarkably. Additionally, utilization of these technologies in learning field has increased as well (McDonald & Hannafin, 2003; Polat & Güzel, 2011). Furthermore, it is expected that computer and internet would more extensively be used in education by both students and teachers than ever (Martinovic & Zhang, 2012).

According to the "Household Information Technologies Usage" statistics published by the Turkish Statistical Institute (TSI) in 2015, it was determined that 54.8% of individuals aged 16-74 were household computer users; and 69.5% have internet access at home. Concerning type of access device of users, it was observed that 25.2% was using desktop computer, 43.2% were using laptops, and 96.8% were using cell phone. On the basis of these results, whereas computer usage rate of males aged 16-74 was determined as 64%; this rate was 45.6% for females. Furthermore, internet usage rate of males aged 16-74 was determined as 65.8%, it was 46.1% for females. The largest computer user group rate was 70% exhibited by the group aged 16-24. The highest internet usage rate was 77% exhibited again by the group aged 16-24 (TSI, 2015). When these findings were compared with data from the previous years, it could be realized that house hold computer and internet technology usage has increased with increasing pace.

In parallel to the technology services, volume of information created in virtual environments has significantly increased (Lyman & Varian, 2000). Substantially increasing information volume has also introduced some

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problems. Regarding technology usage, some difficulties such as accessing Turkish characters; necessity to use keywords in foreign languages; deficiency in infrastructure; and technical problems; internet connection problems; poor computer education; and negative impact of computer on socialization have arisen (Çuhadar & Battal, 2010; Karaman & Açıkyıldız, 2006). These problems have adverse effect on effective usage of technologies. Therefore, it is important to determine processes accurately, in which students could acquire the information that they need; and to reveal the problems that they encounter in this process (Neset, 2008). Additionally, the need for maintaining capability of middle and secondary school students to access the information along their further ages in the information technology environment which is evolving with a great pace necessitates design of solid policies and review of education contents in teaching programs (Şerefoğlu Henkoğlu, Mahiroğlu, & Keser, 2015). Moreover, it is evident that students, parents and institutions such as the Ministry of Youth and Sport are required to undertake joint roles and certain responsibilities regarding the risks associated with computer and internet, and solution of problems (Gökçearsan & Seferoğlu, 2016).

Studies concerning cognitive and social contributions of computer and internet have increased in the literature (Deniz, 2008; Greenfield & Yan, 2006; Johnson, 2010). Besides basic functions of computer and internet such as communication and accessing information, there are benefits such as contribution into social capital, strengthening social unity and awareness, coordination among groups and enhancing communication (Akbulut, 2013). These benefits have transformed computer and internet into new born babies for families (Akbulut, 2011). According to the relevant literature, it was observed that studies on computer and internet were concentrated on students' computer and internet usage areas, experiences, purposes, reasons (Batmaz, 2012; Deniz & Coşkun, 2004; Demir, 2006; Doruk, 2007; Dursun, 2004; Ersoy & Yaşar, 2003; Gökçearsan, 2005; Tuti, 2005); and on effects of computer and internet on students' success (Dönmez Usta, Karanlı, & Durukan, 2016; Hacısalihioğlu Karadeniz & Akar, 2014; Kaya, 2010), and attitudes (Bahar, Uludağ, & Kaplan, 2009; Deniz & Köse, 2003; Köse, Gencer, & Gezer, 2007; Usta, 2011). However, unlike the existing literature, in the name of preparing students as stronger individuals for their future, it is necessary to determine inferences attributed to these new concepts by students; computer programs used by them; internet websites visited by them; encountered problems; and relevant suggestions for solution. Therefore, it could be seen that there is certain need for a study to determine computer and internet usage approaches of middle and secondary school students since it has been seen that computer and internet usage rate among students have substantially increased recently; and the highest rate was measured with the group aged 16-24 (TSI, 2015). From this point of view, the purpose of the present study is to expose approaches of middle and secondary school students toward computer and internet. Accordingly, following questions were tried to be answered along the purpose stated:

1. What computer and internet infer for students?
2. What are the most frequently used computer programs and internet websites by students?
3. Which problems are encountered by students during usage of computer and internet?
4. What are the suggestions of students for effective usage of computer and internet?

## **METHOD**

This section includes information on the research method, study group, data collection tool, and data analysis.

### **Research Method**

The present research is a qualitative study to explore approaches of middle and secondary school students toward computer and internet. Qualitative study could be described as a process of effort spent by individuals to resolve and comprehend problems experienced by both themselves and by others in their proximity through unique methods (Creswell, 2014). In the present study, findings resulted from personal experiences of individuals who were evaluated through qualitative research approach were investigated systematically (Lincoln & Guba, 1985; Strauss & Corbin, 1998).

### **Study Group**

In order to reflect diversity of participants who could be stakeholder of the issue oriented as much as possible (McMillan & Schumacher, 2006; Yıldırım & Şimşek, 2008), maximum diversity sampling, one of the purposeful sampling methods, was employed in the study. Participants of the study were 483 (322 middle and 161 secondary) middle and secondary school students from Trabzon and Giresun cities in the fall semester of the academic year of 2015-2016. The participants were applied "Computer and Internet Approach Form". Some demographical characteristics of participants, determined through this form, were summarized in Table 1 below:

**Table 1. Various Demographical Characteristics of Students**

Demographical Characteristics	Male		Female		Total		
	f	%	f	%	f	%	
Age Groups	10-12	78	16.1	96	19.9	174	36.0
	13-15	81	16.8	73	15.1	154	31.9
	16-18	39	8.1	109	22.6	148	30.6
	19 and above	3	0.6	4	0.8	7	1.5
Grades	5 <sup>th</sup>	36	7.5	39	8.1	75	15.5
	6 <sup>th</sup>	48	9.9	60	12.4	108	22.4
	7 <sup>th</sup>	42	8.7	40	8.3	82	17.0
	8 <sup>th</sup>	34	7.0	23	4.8	57	11.8
	9 <sup>th</sup>	2	0.4	13	2.7	15	3.1
	10 <sup>th</sup>	2	0.4	4	0.8	6	1.2
	11 <sup>th</sup>	3	0.6	52	10.8	55	11.4
	12 <sup>th</sup>	34	7.0	51	10.6	85	17.6

Whereas 41.6% of participants were male (201); 58.4% were female (282); distribution of age groups of 10-12, 13-15, 16-18, and 19 and above were 36.0%, 31.9%, 30.6%, and 1.5%, respectively. Distribution their grades 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> were 22.4%, 17.0%, 11.8%, 3.1%, 1.2%, 11.4%, and 17.6%, respectively.

### Data Collection Tool

The researchers prepared a form consisted of eight open-ended questions in order to collect data from students along the purpose of the study. In this form, there are the meanings assigned to computer and internet by the students, their computer program and internet website preferences, problems they encounter in computer and internet usage, and questions regarding effective usage of computer and internet. During preparation of this form, the studies on computer and internet usage patterns of middle and secondary school students were reviewed first. The form prepared according to the purpose of the study was submitted to two experts from the relevant major and a Turkish teacher for their opinions. The experts from the major were asked to review the form in terms of whether the questions in the form serve the purpose of the study; and the Turkish teacher was asked to review the question sentences to determine whether they are clear and comprehensible, or not. Moreover, a pilot study was conducted on 30 students for the prepared form. At the end of the pilot study, necessary amendments were made on the form along the views of experts and the teacher; and the ultimate form used during data collection process was created. During data collection process, students were informed about the purpose of the study first. Then, the form prepared by the researchers was applied on students in the classroom environment under surveillance of teachers in conventional written form. The participant students were asked to answer the questions in detailed way that they represent their personal views.

### Data Analysis

Data collected within the scope of the present study was analyzed through descriptive and content analysis methods. Firstly, collected data was transformed into MS Word format. As the MS Word files were being prepared, it was paid attention to transfer answers of students in their original form. Secondly, data in these MS Word files incurred descriptive analysis individually. Furthermore, codes and categories were prepared by means of the content analysis. Afterwards of the descriptive and the content analyses, the researchers made required changes by comparing codes and categories that they created. Upon the researchers determined the codes and categories, frequencies and percentages of codes were estimated. Since some students displayed their views about multiple questions at once while they were answering open-ended questions, total frequency of codes could sometimes be greater than number of total participant students. Finally, collected data was organized in tables to be exhibited to the reader and direct citations from answers of students were displayed as well. For consistency evaluation among codes, "Reliability = [Agreement / (Agreement + Disagreement)]" formula was used (Miles & Huberman, 1994). According to the estimation based on this formula, conformity among coders was estimated at 84.1%.

## FINDINGS

Based on analysis of answers of students to open-ended questions, their approaches toward computer and internet were exhibited under four titles:

## Meanings Attached to Computer and Internet by Students

Frequency and percentage values of codes created based on answers given by students to the questions concerning meaning of computer to the students were summarized in Table 2 below:

**Table 2. Meaning of Computer to the Students**

	<b>Codes</b>	<b>f</b>	<b>%</b>
1	Tool for entertainment	171	35.4
2	An auxiliary tool for courses	118	24.4
3	Nothing	45	9.3
4	A tool which makes life easier	28	5.8
5	Device for watching film / video	20	4.1
6	An unhealthy device	10	2.1
7	Everything	10	2.1
8	Device to watch movie episodes	8	1.7
9	Device for listening music	8	1.7
10	An addictive tool	6	1.2
11	A tool which harms social connections of people	6	1.2
12	A mean enabling us to be happy	4	0.8
13	Miracle technology device	4	0.8
14	Lover	2	0.4
15	Family	1	0.2
16	Information storage tool	1	0.2
17	The most significant invention of this age	1	0.2
18	A tool enabling us to download files	1	0.2
19	A window opening to the world	1	0.2

According to Table 2, it could be seen that students view computer mostly as an entertainment tool and assistance for their course work. Examples of students' answers given to the first four codes were displayed below:

*"It stands for entertainment because there are lots of games. (Student 2)"*

*"Computer is an assistant tool for my course work. (Student 13)"*

*"It means nothing. (Student 89)"*

*"It makes my life easier. (Student 53)"*

Frequency and percentage values of codes created based on answers given by students to the questions concerning meaning of internet to the students were summarized in Table 3 below:

**Table 3. Meaning of Internet to the Students**

	<b>Codes</b>	<b>f</b>	<b>%</b>
1	It is the fastest way to reach information	176	36.4
2	Establishing communication	121	25.1
3	Doing research	74	15.3
4	Assistance to courses	66	13.7
5	Social media	51	10.6
6	Makin life easier	44	9.1
7	Playing game	40	8.3
8	Life itself	29	6.0
9	Being happy	26	5.4
10	Nothing	14	2.9
11	News	12	2.5
12	A world makes me feel free	10	2.1
13	Making people sociopath	7	1.4
14	Listening to music	5	1.0
15	An invention miracle of technology	5	1.0
16	Addiction	5	1.0
17	Watching film / video	3	0.6
18	Resource of inspiration	1	0.2

According to Table 3, it could be realized that students view internet as the fastest way of reaching abundant information and as a tool for establishing communication. Some of the expressions indicated by students to the first codes were displayed below:

“Since internet includes all sorts of information inside, I can reach information very fast. (Student 18)”  
 “The best way to communicate with other people. (Student 57)”  
 “Computer has significant place for me with respect to doing research. (Student 35)”  
 “It is a tool that I get help for my homework. I use it for my homework. (Student 3)”  
 “It means social media for me. (Student 27)”

### Students’ Computer Program and Internet Website Preferences

Frequency and percentage values of codes created based on answers given by students to the questions concerning the most frequently used programs in computer were summarized in Table 4 below:

**Table 4. The Most Frequently Used Programs by Students in Computer**

	Codes	f	%
1	MS Office programs (Word, PowerPoint, Excel)	255	52.8
2	Web Browser programs (Google Chrome, Yandex)	132	27.3
3	Photograph / image editing programs (Adobe Photoshop, Retrica, Paint)	25	5.2
4	Game programs (PlayStation Games, Minecraft, League of Legends, Grand Theft Auto, Shadow Fight, Counter Strike, Dragon City, Live for Speed, Point Blank, Stardoll, Wolfteam)	22	4.6
5	Other programs (FrontPage, Winamp, Adobe Acrobat Reader, Keylogger, Winrar, WordPad)	10	2.1
6	Antivirus programs (Eset Nod32, CCleaner, ComboFix, Deep Freeze)	8	1.7
7	Downloading programs (Internet Download Manager, Utorrent)	8	1.7
8	Video maker programs (Windows Movie Maker, Camtasia Studio, Bandicam)	5	1.0
9	Video / film / game players (Adobe Flash Player, Vlc, Gom, and Windows Media Player)	4	0.8
10	Design programs (CorelDraw, AutoCAD)	3	0.6

According to Table 4, it was determined that the most frequently used programs by students were MS Office programs such as Word, PowerPoint, and Excel. Example expressions indicated by students with respect to the 10 codes were given below:

“It is PowerPoint because I like to do things in there. (Student 36)”  
 “It is Google Chrome because I could do everything on the internet. (Student 38)”  
 “I use mostly Paint because. It is quite fun to draw image. (Student 15)”  
 “I like soccer games. I play Pro Evolution Soccer 2015. (Student 18)”  
 “I could download and open some documents by means of the Adobe Reader. (Student 16)”  
 “I use Eset antivirus program. (Student 25)”  
 “I download some stuff by means of the Internet Download Manager. (Student 54)”  
 “It is Camtasia Studio. I make various videos because I enjoy it; I cut and edit videos. (Student 22)”  
 “It is Vlc Media Player. I watch videos. I spend time. (Student 61)”  
 “It is CorelDraw. I could do anything in graphic and design areas. (Student 63)”

Frequency and percentage values of codes created based on answers given by students to the questions concerning the most frequently accessed websites on the internet were summarized in Table 5 below:

**Table 5. The Most Frequently Accessed Websites on the Internet by Students**

	Codes	f	%
1	Communication websites (facebook, instagram, youtube, whatsapp, twitter, ask.fm, tumblr, google+, messenger, snapchat, wattpad, connected2, hotmail, vine, weheartit)	333	68.9
2	Education websites (e-okul, morpa kampus, onedio, eodev, meb vitamin, sanal okulumuz, wikipedia, your learning place, matematikciler, okulistik, teknofem)	63	13.0
3	Game websites (oyuncini, stardoll, habbo, kraloyun, pottermore, moviestar planet, trackmania forever, twitch)	35	7.2
4	Shopping websites (markafoni, morhipo, gittigidiyor, hepsiburada, trendyol)	25	5.2
5	Film episodes websites (dizipub, koreanturk)	7	1.4

According to Table 5, it was determined that students mostly accessed into the communication related websites. Furthermore, it was observed that students accessed in websites related with education, game, shopping, and film episode watching. Examples of expressions indicated by students regarding the five codes were given below:

“I access in Facebook to catch up with the agenda. (Student 66)”  
 “Eodev because I do my research on homework from here. (Student 11)”

*“Pottermore. Because I like playing game on Pottermore. (Student 18)”*

*“Markafoni. I make shopping. (Student 31)”*

*“Dizipub. I watch the episodes of my favourite movies. (Student 67)”*

### Difficulties Encountered by Students while They Use Computer and Internet

Frequency and percentage values of codes created based on answers given by students to the questions concerning the difficulties encountered by students during usage of computer were summarized in Table 6 below:

**Table 6. Difficulties Encountered by Students during Usage of Computer**

	Codes	f	%
1	Illiteracy about usage of some programs	28	5.8
2	Frequent formatting necessity of computers	25	5.2
3	Slow operation of computers	13	2.7
4	Illiteracy about computer usage	11	2.3
5	Poor keyboard usage skill	9	1.9
6	Headache or eye pain caused by computer usage	7	1.4
7	Difficulty on program downloading	5	1.0
8	Foreign words in some programs	5	1.0
9	Charging problems with laptops	2	0.4
10	Failure in formatting process	1	0.2

According to Table 6, it was determined that students encounter commonly with difficulties such as illiteracy about usage of some programs and frequent formatting needs of computers. Examples of students' expressions regarding the first four codes were given below:

*“Since I do not know some programs, I experience difficulties. Especially with MS Office programs. (Student 48)”*

*“When the computer freezes, I could not do anything. I need to format the computer. (Student 10)”*

*“Slow operation of computer and frequent hang up. (Student 45)”*

*“I am literate on computer usage. (Student 11)”*

Frequency and percentage values of codes created based on answers given by students to the questions concerning the difficulties encountered by students during usage of internet were summarized in Table 7 below:

**Table 7. Difficulties Encountered by Students with Internet**

	Codes	f	%
1	Malware infection from internet	47	9.7
2	Slow internet speed	39	8.1
3	Lack of internet connection	22	4.6
4	Experiencing loss of connection to internet	20	4.1
5	Illiteracy about internet usage	15	3.1
6	Existence of harmful / forbidden website	8	1.7
7	Loss of internet access time to time	3	0.6
8	Hacker attacks	1	0.2

According to Table 7, it was observed that the most common difficulty encountered by students with respect to internet usage was internet-born virus. Examples of students' expressions given regarding the first four codes were given below:

*“I experience difficulty when virus comes from internet to my computer. (Student 46)”*

*“Sometimes internet speed is quite low. (Student 40)”*

*“Lack of internet connection at home. (Student 62)”*

*“There are times that I cannot connect to the internet. (Student 34)”*

### Suggestions of Students Regarding Effective Usage of Computer and Internet

Frequency and percentage values of codes created based on answers given by students to the questions concerning their suggestions regarding effective usage of computer were summarized in Table 8 below:

**Table 8. Students' Suggestions Regarding Effective Usage of Computer**

	<b>Codes</b>	<b>f</b>	<b>%</b>
1	People could develop their conscious through computer training courses.	171	35.4
2	All students could be provided computer.	62	12.8
3	Computer prices could be reduced.	59	12.2
4	Computers may not be used due to their adverse impact on health.	25	5.2
5	Superior computers could be manufactured.	23	4.8
6	Educational and instructional programs could be developed.	16	3.3
7	Advertisements could be published.	14	2.9
8	Computer courses could be given at schools.	13	2.7
9	Computer course hours could be increased.	12	2.5
10	Computer-generated homework could be assigned.	11	2.3
11	Number of computers could be increased at schools.	8	1.7
12	Internet laboratories could be established at schools.	7	1.4
13	Posters could be prepared.	7	1.4
14	Computers could be used under parents' supervision.	6	1.2
15	Relevant conferences could be organized.	5	1.0
16	Antivirus programs could be used.	3	0.6
17	Mottos could be prepared.	3	0.6
18	Brochures could be printed.	3	0.6
19	Seminars could be organized.	2	0.4
20	Educational and instructional websites could be published.	2	0.4
21	Students could be allowed to access into computer labs at schools at all the time.	2	0.4
22	Movement of Enhancing Opportunities and Improving Technology Project could be supported.	2	0.4
23	Practical computer courses could be provided.	2	0.4
24	Public announcements could be increased.	1	0.2
25	Turkish versions of computer programs could be introduced.	1	0.2
26	Free computer centres could be established.	1	0.2
27	Computer support hotline could be established.	1	0.2

According to Table 8, it was determined that the most frequently expressed suggestion by students regarding effective usage of computer was "Establishing computer courses for public to develop their conscious about computer usage". Examples of expressions indicated by students regarding the first five codes were displayed below:

*"There is necessity to open more computer courses. Programs to enhance conscious of individuals are required to be extended because especially parents are illiterate about this subject. (Student 10)"*

*"All individuals could be provided computer. (Student 15)"*

*"I wish I could lower computer prices so that everyone could get one. (Student 24)"*

*"They should not be used to often because many people could get some diseases. (Student 18)"*

*"Superior computers are required to be developed. (Student 54)"*

Frequency and percentage values of codes created based on answers given by students to the questions concerning their suggestions regarding effective usage of internet were summarized in Table 9 below:

**Table 9. Students' Suggestions Regarding Effective Internet Usage**

	<b>Codes</b>	<b>f</b>	<b>%</b>
1	Training sessions could be introduced.	89	18.4
2	Internet usage tariffs could be reduced.	86	17.8
3	Access to the harmful / inappropriate websites could be limited.	80	16.6
4	Internet access could be provided to all houses.	58	12.0
5	Students could be assigned research studies.	47	9.7
6	Internet speed could be developed.	29	6.0
7	Advertisements could be published.	28	5.8
8	Unlimited internet service could be provided.	18	3.7
9	Internet service could be free of charge.	15	3.1
10	Posters could be prepared.	11	2.3
11	Internet packages could be enlarged.	6	1.2
12	Seminars could be introduced.	6	1.2
13	Internet could be made available in everywhere.	4	0.8
14	Conferences could be organized.	3	0.6

According to Table 9, it was observed that students commonly suggested that “internet courses are required to be provided for improving conscious of people about internet usage”, “lowering internet fees”, and “prevention access into harmful / inappropriate websites”. Examples of expressions given by students regarding the first five codes were indicated below:

*“I would train people about effective usage of internet through public courses. (Student 25)”*

*“Internet fees could be less. (Student 40)”*

*“The Ministry of National Education could ban unfavourable websites so that psychology of students could not be influence adversely. (Student 10)”*

*“The government should provide free internet to all homes. (Student 22)”*

*“The research assignments should be given. Thus, we use internet more effectively. (Student 28)”*

## DISCUSSION and CONCLUSION

In the present study, it was aimed to determine approaches of middle and secondary students toward computer and internet.

It was determined that students views computer more like as an entertainment tool and as an auxiliary tool for their courses. This situation suggests that students consider computer as an entertainment and education tool. These findings exhibit similar direction with studies of Batmaz (2012), Ersoy and Yaşar (2003). Computers have been one of the irrevocable elements of our lives in every aspect (Akbulut, 2013) because individuals own computers to catch up with novelties introduced by technology, to access information conveniently and quickly and to make their lives easier (Özkan, 2010).

It was determined that students view internet as the fastest way of accessing information and as a communication tool. Therefore, it was understood that students consider internet as a tool for accessing information and establishing communication. Şerefoğlu Henkoğlu et al. (2015) reported that students embrace advantageous aspects of internet; and that students perceive internet as an environment in which they could find all information conveniently and quickly. According to other studies with similar purpose, I was observed that internet is used mostly for having information about daily news, listening to music, watching movies and videos, sending e-mail, playing game, chatting, entertainment, downloading music, film or file (Batmaz, 2012; Bayraktar & Gün, 2007; Ceyhan & Ceyhan, 2011; Deniz & Coşkun, 2004; Ersoy & Yaşar, 2003; Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, & Scherlis, 1998; Kuzu et al., 2008; Tsai & Lin, 2003; Yang & Tung, 2007). In this regard, in addition to the fact that students use internet as an entertainment, game and social media, and communication purpose, they use it for educational purposes and their criterions are required to be paid attention.

It was revealed that students use MS Office programs most. MS Office programs are followed by web browser and image/photograph editing programs. The least used programs were the ones used for designs. In this regard, it is realized that students view computer as a programming tool that could be utilized for multiple purposes. Köse et al. (2007) determined that students use MS Office programs intensively. Gökçearsan and Seferoğlu (2005) determined in their study that students are dispose to computer software with game content rather than educative programs; and reported that game programs are significantly important in purchasing of a household computer and that 79% of household computers were composed of game programs. Therefore, necessary emphasis is required to be placed on issues of utilization degree of students from computer programs and their positive or negative impacts on students.

It was determined that students most frequently visited websites related with communication. In terms of establishing communication means, it is possible to state that internet usage is rather common among students (Özkan, 2010). Communication websites were followed by education, game, shopping, and film episode websites. In this regard, it was observed that students use internet websites first of all for communication than for many other purposes. In the research conducted by Batmaz (2012), it was stated that students establish their communication over Facebook. Dursun (2004) emphasized that student stake advantage of electronic mail services communication for establishing communication. In a study conducted by Yıldız and Abdüsselam (2016), it was determined that males and females prefer Facebook more with respect to other social media tools; additionally, males use Facebook more than females; and females use Instagram and Twitter more than males. On the other hand, it should not be underestimated that the internet perceived as communication opportunity could be turned into a threat over the time “because parents lack sufficient technology literacy (Akbulut, 2013)”.

It was observed that some students experience various problems such as lack of skills to use programs, frequent formatting necessity of computers, virus infection from internet and poor internet speed. In this regard, it was understood that the problems encountered by students while they were using computer and internet were in cognitive and technical dimensions. It is known that some students do not utilize from computer and internet because they do not know how to use them, experiencing difficulty in accessing computer and internet, and

getting infected by internet-borne viruses (Abdüsselam & Yıldız, 2015; Akgün & Topal, 2015; Canbek & Sağıroğlu, 2007; Yıldız & Abdüsselam, 2016). These difficulties cause hard time for students in effective and quality usage of computer and internet. Accordingly, students are required to be informed about cognitive (Akbulut, 2013) and technical (Canbek & Sağıroğlu, 2007) results of computer and internet usage. In this regard, the Ministry of Youth and Sport has been conducting a study aiming to cover 100 thousand youth, referred as “safe internet and social media” (Gökçearslan & Seferoğlu, 2016). Number of such studies could be increased.

It was revealed that the most frequently drawn suggestion by students concerning effective usage of computer and internet was that computer and internet courses should be established. Therefore, it was understood that awareness of students are required to be developed regarding effective computer and internet usage through training courses. In the study of Korkmaz (2010), it was determined that utilizing from peer education in internet usage would provide significant advantages to students regarding internet usage. Dursun (2004), in his study conducted on university students, reported that students developed their computer and internet usage skills by themselves; and the environments specific to computer and internet usage at higher education were not sufficient. Ersoy and Yaşar (2003) reported in their study that students were not capable of using especially internet effectively and productively; they were able to find sufficient support regarding internet usage from their parents and teachers. In this regard, it was considered that establishing courses on effective usage of computer and internet could be beneficent for individuals.

There are two limitations with the present study. The first one is its limitation since 10<sup>th</sup> grade students were not sufficiently included in the study in which the relevant data was collected from the students by means of the form containing open-ended questions. Only 1.2% of students (n=6) in the study group were from the 10<sup>th</sup> grade. The second limitation of the study was that research data was collected only by means of a form; and no any interview or observation data was included in the considerations.

## **RECOMMENDATIONS**

On the basis of research results, following recommendations were drawn:

- 1.** Since students view internet as the fastest way of accessing information in general, it could be beneficent that awareness of students regarding paying attention to ethical codes during doing research on internet.
- 2.** Students could use filter software such as “Internet Family Protection Package” and “Safe Internet” against viruses and malware / inappropriate websites.
- 3.** Parents need to inspect computer and internet usage of their children time to time since it is important for children to use computer and internet under supervision of their parents.
- 4.** It should not be underestimated that children are required to be informed about usage of computer and internet effectively and safely. This process could be accomplished either by means of educational activities such as training courses at schools, seminars, and conferences. Moreover, advertisements could be published about effective and safe usage of computer and internet, public announcements could be made, mottos could be communicated, posters and brochures could be prepared.
- 5.** Students could be encouraged to visit internet websites that could assist them in terms of academic point of view; computer programs and applications could be taught. Furthermore, educational and instructional new programs and websites could be prepared for students so that they could utilize these technologies in a qualified and desirable way.
- 6.** Effective usage of computer and internet could be covered more extensively in courses of “Information and Communication Technologies” and “Information Technologies and Software” at school.
- 7.** It could be beneficent for students to increase their awareness about software and hardware problems that they could encounter about computer and internet. Ministry of National Education could establish a support hotline to provide assistance to students in this regard.
- 8.** Students’ awareness could be raised about health problems such as headache and eye pain, associated with long-term computer usage.
- 9.** The form to determine “Students’ Approach toward Computer and Internet” developed under the scope of the present study could be applied in all middle and secondary schools under the roof of the Ministry of National Education.

10. Approaches of prospective teachers, teachers, and academicians toward computer and internet could be investigated.

11. Observation activities could be conducted to investigate approaches of students toward computer and internet usage and to determine the difficulties that they encountered.

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