The effect of Internet usage on technology comprehension of physics students: A case study

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Contents

Abstract

Rapid technological enhancements and changes necessitate people who can understand the relation between science and technology and perceive as well as comment on technological enhancements. The aim of the present study was to determine physics students comprehension of the operation principles of wired telephone, mobile phone, and latest medical imaging devices such as ultrasonography, magnetic resonance (MR) and computed tomography (CT) and whether their comprehension results change according to their computer and internet usage or not. 199 students from 1st, 2nd, 3rd, and 4th grades of physics education department are included in the sample of the research conducted using survey method. Relevant data were collected using a survey developed by the researcher. Statistical data analysis was conducted using frequency distribution, percentage and $\chi 2$ (chi square) tests.

According to the results of the research, 34% of the physics department students considered the waves transmitted in wired telephones as sound waves. 27% of the students answered also as sound waves to the question “What is kind of a wave is transmitted in mobile phones? This outcome is both upsetting and worrying. There was a significant difference in the answers of the students to the question related to mobile phones and their internet usage ($\chi 2 = 6.634$; sd=1; $p = 0.010 < 0.05$). Students who have excess internet access answered this question more accurately. The operation principle of MR device, on the other hand, was known accurately by

23% of the students. No statistically significant differences were found between other variables.

Keywords: Internet, Level of Technology Comprehension, Students, Physics Department.

Introduction

In these days, witnessing technological enhancement at a dizzying speed, many events we confront, use, and observe in our daily lives are related with physics. Hence, it's necessary for today's people to have a general physics culture education in order to understand and comment on technological developments that affect every stage of life. Bringing up individuals who have a scientific perspective, who can correlate between science and technology, and understand the importance of science and technology in the advancement of the society is clearly stated among the general principles of physics education. Besides the acquisition of basic laws of physics, secondary education physics classes should also make the students obtain the necessary information and skills to succeed in a science and technology dominated world. Relating the knowledge acquired in the classes to real life will enable the students to have a better understanding and usage of concepts (Avci, D.E., & Yagbasan, R. 2004). Rote-learning generally dominates in our schools and as a natural consequence of this, students memorize what they learn without making the knowledge meaningful and do not correlate science education with daily life. Previous studies have determined that students cannot comment on concepts related to physics, chemistry, and biology adequately and were unable to evaluate these and relate to their daily lives (Enginar, Saka, Sesli, 2002; Yigit, Devecioglu, Ayvaci, 2002; Erduran, & Yagbasan, 2003; Bozkurt & Ingeç 2008; Devecioglu & Akdeniz 2006; Pinar & Demirci, 2006; Kaptan & Kusakçi, 2002; Yigit & Akdeniz, 2003; Prosser, 1994; Yildiz, Yildirim, Ilhan, 2006; Ayas, Karamustafaoglu, Sevim, Karamustafaoglu, 2001; Özmen, 2003; Mübeccel, Dogan Bora, Katircioglu, 2005; Yüzbasioglu & Atav, 2004; Gürses, Akrabaoglu, Açikyildiz, Bayrak, Yalçin, Dogar, 2004; Hoffmann, Haeussler, Lehrke, 1998; Köse, Sadi, Kaya, 2008; Mc Keough, Lupart, Marini, 1995).

For this reason, in physics education classes not only the topics but also their relation to our lives should taught to the students. New educational programs should be developed in order to show the relation of physics to our daily lives. Moreover these programs should be open to the new technological developments and environmental problems affecting the society. Most traditional programs aim the transfer of information with the philosophy of traditional learning theories. However, due to the enhancements in communication technology, new information increases at such a rapid pace that it becomes impossible to transfer all knowledge. The philosophies of contemporary programs aim to teach students how to access knowledge rather than transfer. In this new approach, it's important to enable the students gain fundamental concepts in physics and scientific procedures. After teaching students the basics in physics they should be taught how to reach new information and how to correlate them with life. Enabling individuals to use the acquired knowledge for personal and social ends is among the aims of science education (De Boer, 2000). It's known that scientific information learned at schools will be lasting as long as it's correlated with daily life (Ayas & Ozmen, 1998). Redish (2006) developed a model consisting of eight items for the transfer of physics knowledge to daily life based on information processing approach used in cognitive development. In today's information and technology age, physics/science and technology education have important key roles for the future of a society. Therefore, all societies, especially developed countries are always in the pursuit of increasing the quality of science and technology education (MEB, 2004). Technology education deals with practical applications of physics. Understanding the century we live is primarily related to understanding technology and its dimensions. One of the aims of technology education is to make individuals technology literates (Gordon, Hacker, Viries, 1995). Technology education may enable individuals to be "technology literates". A technology literate student has to know the relation between technologies and its relation to other fields (ITEA, 2000). Laney (1990) indicated that technology usage was effective on developing high level thinking skills which include describing, problem solving, and producing appropriate solutions for them. Technology usage in learning environments provides substantial learning opportunities for students, arouses their interest, and increases their motivation by centralizing them in the teaching learning process. From this aspect, technology usage has an important role during learning-teaching period (Isman et al., 2002).

Internet is a powerful communication system connecting one computer with another anywhere in the world. Communication with computer network affects education sophisticatedly. While computers have occupied every field of our lives, internet seems to be the main factor that accelerated this trend. Internet has many advantages such as being cheap, fast, and easy to use. Web pages include easily-accessible information on the network. World's leading trainers test new technologies by gathering new methods from the net (Rose, 1996; Thomas et al., 1996). New information age brings about the need for people who are not only talented in electronics and computer technology but also in the application of these to generate new information as well as in the field where the newly produced information is going to be employed. Now, individuals who find, collect, present, comment, and even create information are appreciated.

Nowadays, the range of technology extends from e-mail to teleconference. In a study carried out at Open University in UK, the best computer mediated methods to support lecturers and students in conventional university courses were investigated. (Light & Colbourne, 1997).

In the study carried out by Strac (1995), it was determined that information and communication technologies (ICT) had a positive impact to the correlation of students' experiences and their interpretation. It was also indicated that information and communication technologies had important roles in the enrichment of science education (Walton, 2000) and facilitated students' conception of the concepts better (Kyprianou, 1995; Cavas, 2005). Hence, the Turkish Council of Education and Training allowed projects aimed at the usage of information and communication technologies in education such as publication of articles in many fields and presentation of these to teachers in print or on internet (MEB, 2004).

The teachers both at primary and secondary education gradually started to consider internet as a source for classes (Davenport, 1995). It was also determined that the teacher candidates used internet mostly for performing student affairs and for the aim of making researches about homework and courses (Tokcan, 2008).

Following the developments in science and technology and employing them for the benefit of the public is a precondition of a modern society concerning all layers. Individuals need to be equipped with the latest know-how, skills, and attitudes in order to keep pace with the increasingly complex social life due to fast technological developments. All university students, especially teacher candidates, are to have appropriate education for conducting research during their undergraduate education (Loftus, 1999). The reason for a researching teacher model was explained by Cepni and Akdeniz (1996) as follows: "in our country, educational decisions are taken in the capital and sent to schools as instructions and in order for innovative projects to be understood by the teachers appropriately, teachers have to be educated with a drive for research".

Students at the universities after 1999 were considered as rather unqualified in terms of using information (Ozmen, 2005). At high schools students who do not take the adequate background in physics courses predominate. This makes the education at universities difficult and most of the time it causes students to fail.

Physics curriculum was redesigned in 2007, in order to cope with the above mentioned problems (MEB, 2007). According to this novel program, the vision of physics course curriculum is to grow individuals who regard physics as life itself, solve problems using scientific methods, analyze interactions between physics, technology, society, and environment, develop positive manners and behaviors for themselves and their environment, are literate in information and have talents necessary for an information society, express their thoughts objectively and effectively, are at peace with himself and their environment, and are productive. This curriculum aims to bring up creative individuals who can see physics in every field of life, learn physics as mentioned in the above vision of the new curriculum, and develop their talents with knowledge of physics. In order to reach this vision, real life based approach together with knowledge and skill acquisitions form the mission of Physics Education Curriculum. Real life-based education approach was investigated in detail with projects and scientific studies carried out in;

- United Kingdom (the Salters Approach and SLIP: Supported Learning in Physics Project),
- Germany
- Finland (ROSE: The Relevance of Science Education),
- Israel (STEMS: Science, Technology Environment in Modern Society)
- USA (Finlandiya ChemCom: American Chemical Society)
- Netherland (PLON: Dutch Physics Curriculum Development Project)

These studies revealed that real life based approach increased the interest and motivation of students for physics courses. Especially Australia and New Zealand pioneered in the impact of real life context based approach on physics and science curriculum. The real life context and Physics-Technology-Society-Environment gains are intertwined with each other. Both approaches establish a relation between the abstract concepts of physics with the concepts of real life. As a result of these studies, it was concluded that European countries work more on real life-based approach, while Americans give particular importance to Science-Technology-Society-Environment gains (MEB,2007).

Considering that the physics curriculum internalizes a real life context based approach, the physics curriculum now highlights that concepts of physics should be taught in units taking technologies used daily into consideration. Hence, an issue worth investigating is the association of physic's concepts to technology and whether computer and internet use have an impact on the understanding of technology by prospective physics teachers.

Aim

The present study aimed to determine: undergraduate levels of:

- Physics students' knowledge levels the operation principles of some frequently used devices in their daily lives and their relation with concepts of physics,
- Physics students' knowledge levels on the operation principles of some frequently heard medical imaging devices and their relation with concepts of physics,
- Changes in physics students' knowledge levels according to their internet usage levels.

Method

The study was conducted using survey method. Survey studies are carried out in order to determine a present condition. They seek answers to questions such as "What is the present situation of the event or problem that is to be researched?" and "Where are we?". In this kind of research, the range of the sample is quite large. The easiest way of gathering data from a large sample is using questionnaires. This is the reason why questionnaires are preferred in survey studies. Questionnaires yield to the attainment of quantitative data from a large sample. The underlying idea behind the statistical analyses of the quantitative data obtained is to make generalizations regarding the issue to be researched. (Cepni, 2010; Ekiz, 2007).

Sample

The sample of the study consists of 199 students, 129 male and 70 female, enrolled at Selçuk University, Faculty of Sciences - Physics Department throughout the fall term of 2009-2010. Detailed data related to the sample of the study are given in Table 1.

Table I. Data related to the sample of the study

		Male	Female	Total
1st class	f	37	21	58
	%	63,8	36,2	100,0
2nd class	f	28	13	41
	%	68,3	31,7	100,0
3rd class	f	33	23	56
	%	58,9	41,1	100,0
4th class	f	31	13	44
	%	70,5	29,5	100,0
Total	f	129	70	199
	%	64,8	35,2	100,0

According to Table 1, out of the 199 participants, 64.8% (129) of the participants in the study were male and 35.2% (70) female.

Data Collection and Analysis

The data of the present study were collected using questionnaire. The questionnaire consisted of 13 multiple-choice questions. Out of these 13 questions, the first five questions of the questionnaire were related to the demographic properties of the participants, two to technology usage, and the remaining six to the usage of technology in our daily lives. The participants of the study were selected randomly. After informing the students about the study, they were granted 20 minutes to fill out the questionnaire. Statistical analysis of the data was conducted using frequency distribution, percentage, and ?2 (Chi-Square) tests. ?2 (Chi-Square) test was used in order to determine the relation between two variables obtained from a nominal scale. Data analyses have been conducted using SPSS 11.00 package program and considering p<0.05 as statistical significance level.

Findings and Interpretation

The present study investigates the relation between students' internet usage levels and their genders, current classes, graduated high schools, educational background of fathers- mothers, and their knowledge levels related to the technological communication and imaging devices mentioned.

Table II. Variations in internet usage according to gender, current grade, and former high school of physics students

			Internet usage		Total	χ^2 Test
			yes	no		
Gender	Male	f	119	10	129	χ^2 = ,294,
		%	65,4	58,8	64,8	
		f	63	7	70	sd =1,
	Female	%	34,6	41,2	35,2	
						p= ,588
Class	1.class	f	51	7	58	
		%	28,0	41,2	29,1	
	2. class	f	36	5	41	χ^2 = 3,562,
		%	19,8	29,4	20,6	
	3class	f	54	2	56	sd=3,
		%	29,7	11,8	28,1	
	4.class	f	41	3	44	p= ,313
		%	22,5	17,6	22,1	

Graduated High School	Private	f	9	-	9	
		%	4,9	-	4,5	
	State	f	132	15	147	χ^2 =
		%	72,5	88,2	73,9	2,972,
	Anatolian	f	24	2	26	
		%	13,2	11,8	13,1	sd=7,
	Vocational	f	1	-	1	
		%	,5	-	,5	p= ,888
	Trade and Vocational.	f	2	-	2	
		%	1,1	-	1,0	
	Science	f	6	-	6	
		%	3,3	-	3,0	
	Religious Vocational	f	7	-	7	
		%	3,8	-	3,5	
	Others	f	1	-	1	
		%	,5	-	,5	

According to the data in Table II, there is no significant relation ($\chi 2 = 0.294$; sd =1; p = 0.588 > 0.05) between students' internet usage and gender as well as ($\chi 2$ = 3.562; sd=3; p = 0.313 >0.05) between their current classes. Moreover no significant relation ($\chi 2 = 2.972$; sd=7; p= 0.888 >0.05) was seen between internet usage and type of high school graduated from. The relation between the educational background of fathers and mothers of physics department students and their internet usage is given in Table III.

Table III. The relation between the educational background of fathers and mothers of physics department students and their internet usage

			Internet Usage		Total	χ^2 Test
			Yes	No		
Father's Educational Background	Primary	f	77	5	82	
		%	42,3	29,4	41,2	
	Secondary	f	24	4	28	χ^2 = 7,949,
		%	13,2	23,5	14,1	
	High school	f	48	6	54	sd=4,
		%	26,4	35,3	27,1	
	Graduate	f	32	1	33	p= ,093
		%	17,6	5,9	16,6	
	Post graduate	f	1	1	2	
		%	,5	5,9	1,0	
Mother's Educational Background	Primary	f	130	12	142	
		%	71,4	70,6	71,4	
	Secondary	f	21	3	24	χ^2 = 2,208,
		%	11,5	17,6	12,1	
	High school	f	27	1	28	sd=3,
		%	14,8	5,9	14,1	
	Graduate	f	4	1	4	p= ,530
		%	2,2	5,9	2,5	
	Postgraduate	f	-	-	-	
		%	-	-	-	

The results of the χ^2 analyses, carried out in order to determine the relation between educational background of fathers and their internet usage, revealed no statistically significant relation between these two (χ^2 = 7.949; sd=4; p = 0.093 >0.05). However, it can be seen that 41.2% (82) of physics department students' fathers were graduated from primary school whereas only 1% (2) was a postgraduate. No statistically significant relation was found between the educational background of physic students' mothers and their internet usage. 71.4% (142) of their mothers who were graduated from primary school while 2.5% (5) of them were graduated from high school and none was postgraduate according to the data presented in Table III.

The relation between physics department students' internet usage and mobile phone possession years is given in Table IV.

Table IV. The relation between physics department students' internet usage and years of mobile phone possession

			Possession of a mobile phone for				Total	χ^2 Test
			1-3 years	3-5 years	5-7 years	More than 7		
Internet usage	Yes	f	23	70	62	27	182	
		%	12,6	38,5	34,1	14,8	100,0	χ^2 = 4,071,
	No	f	3	10	3	1	17	sd=3,
		%	17,6	58,8	17,6	5,9	100,0	p= ,254
Total		f	26	80	65	28	199	
		%	13,1	40,2	32,7	14,1	100,0	

As a result of χ2 analysis from the data given in Table IV, carried out in order to determine the relation between physics department students internet usage and years of mobile phone possession , it can be seen that there is no statistically significant relation between these tow entities ($\chi2 = 4.071$; sd=3; $p = 0.254 > 0.05$).

Table V presents the relation between physics department students answers to the question "What kind of a wave is transmitted in wired telephones?" and their internet usage.

Table V. The relation between physics department students answers to the question "What kind of a wave is transmitted in wired telephones?" and their internet usage

			Kind of wave transmitted in wired telephones			Total	χ^2 Test
			Sound wave	Light wave	Electrical signal		
Internet usage	Yes	f	64	9	109	182	χ^2 = ,151, sd=1, p= ,698
		%	35,2	4,9	59,9	100,0	
	No	f	5	1	11	17	
		%	29,4	5,9	64,7	100,0	
Total		f	69	10	120	199	
		%	34,7	5,0	60,3	100,0	

According to the data given in Table V, more than half of the physics department students who use and do not use internet answered the question correctly. 34.7% of students supposed that this transmitted wave was sound wave. As a result of $\chi 2$ analysis, carried out in order to determine the relation between internet usage and their correct/wrong answers to the question "What is the wave transmitted in wired telephones?", there was no significant relation($\chi 2 = 0.151$; sd=1; $p = 0.698 > 0.05$).

Table VI shows the relation between physics students' internet usage and their answers to the question "What kind of a wave is transmitted in mobile phones?"

Table VI. The relation between physics students' internet usage and their answers to the question "What kind of a wave is transmitted in mobile phones?"

			Kind of wave transmitted in mobile phones			Total	χ^2 Test
			Sound wave	Light wave	Radio wave		
Internet usage	Yes	f	44	8	130	182	χ^2 = 6,634, sd=1, p= ,010
		%	24,2	4,4	71,4	100,0	
	No	f	9	1	7	17	
		%	52,9	5,9	41,2	100,0	
Total		f	53	9	137	199	
		%	26,6	4,5	68,8	100,0	

The analyses of the data in Table VI show that 68.8% of the students answered the question correctly by stating radio waves. However, a 26.6% statement of sound waves is worrying. As a result of χ2 analysis, carried out in order to determine the relation between physics department students internet usage and their correct and false answers to the question "What kind of a wave is transmitted in mobile phones?", no significant relation was found between them ($\chi2$ =6.634; sd=1; p = 0.010 <0.05). According to this result, it can be concluded that internet usage positively affected the rate of correct answers of students to this question

Table VII presents the relation between physics department students' answers to the question "What kind of a wave transmitted in fiber optic cables?" and their internet usage.

Table VII. The relation between physics department students' answers to the question "What kind of a wave transmitted in fiber optic cables?" and their internet usage.

			Kind of wave transmitted in fiber optic cables			Total	χ^2 Test
			Sound wave	Light wave	Radio wave		
Internet usage	Yes	f	10	110	62	182	χ^2 = 3,179, sd=1, p= ,075
		%	5,5	60,4	34,1	100,0	
	No	f		14	3	17	
		%		82,4	17,6	100,0	
Total		f	10	124	65	199	
		%	5,0	62,3	32,7	100,0	

According to Table VII, on analyzing physics department students' answers to the question "What kind of a wave is transmitted in fiber optic cables?" it can be seen that 62.3% of students answered the question correctly by stating that it was a light wave. As a result of χ2 analysis, carried out in order to determine the relation between physics department students internet usage and their answers to the question "What kind of a wave is transmitted in fiber optic cables?", no statistically significant relation was seen between them ($\chi 2 = 3.179$; sd=1; $p = 0.075 > 0.05$).

Table VIII presents the relation between physics department students answers to the question "What kind of a wave is transmitted to human tissue by ultrasonography devices?" and their internet usage.

Table VIII. The relation between physics department students answers to the question "What kind of a wave transmitted to human tissue by ultrasonography devices?" and their internet usage

			Kind of wave used in Ultasonography			Total	χ^2 Test
			Ultrasound	Light wave	X-ray		
Internet usage	Yes	f	62	50	70	182	χ^2 = 2,414, sd=1, p= ,120
		%	34,1	27,4	38,5	100,0	
	No	f	9	2	6	17	
		%	52,9	11,8	35,3	100,0	
Total		f	71	52	76	199	
		%	35,7	26,1	38,2	100,0	

According to Table VIII, when the answers of physics department students to the question "What kind of a wave is transmitted to human tissue by ultrasonography devices?" is investigated, it can be seen that 35.7% of the students knew the answer as ultrasound. However, the majority of the participants did not know the operation principle of ultrasonography device. The result of ?2 analysis, conducted to determine the relation between internet usage of physics department students and their answers to the question "What kind of a wave is transmitted to human tissue with the ultrasonography devices?", indicated no significant relation between them ($\chi2$ =2.414; sd=1; p = 0.120 >0.05).

Table IX shows the relation between physics department students answers to the question "What kind of a wave or ray used in computed tomography device?" and their internet usage.

Table IX. The relation between physics department students answers to the question "What kind of a wave or ray used in computed tomography devices?" and their internet

			Kind of wave/ ray used in computed tomography devices				Total	χ^2 Test
			Light wave	Gama ray	Radio wave	X-ray		
Internet usage	Yes	f	14	29	22	117	182	χ^2 = ,001, sd=1, p= ,972
		%	7,7	15,9	12,1	64,3	100,0	
	No	f	3	3		11	17	
		%	17,6	17,6		64,7	100,0	
	Total	f	17	32	22	128	199	
		%	8,5	16,1	11,1	64,3	100,0	

When physics department students answers to the question "What kind of a wave or ray is used in computed tomography devices?" are investigated, as in Table IX , it can be seen that 64.3% of the students, regardless of their internet usage, answered the question correctly by choosing X-ray. As a result of $\chi 2$ analysis, carried out to determine the relation between physics department students internet usage and their answers to the question "What kind of a wave or ray is used in computed tomography device?", there can no significant relation be seen ($\chi 2$ =,001; sd=1; p = 0.972 >0.05).

Table X shows the relation between physics department students answers to the question "What kind of a wave or ray is used in MR devices?" and their internet usage.

Table X. The relation between physics department students answers to the question "What kind of a wave or ray is used in MR devices?" and their internet usage

			Kind of wave/ ray used in MR devices				Total	χ^2 Test
			Light wave	Gama ray	Radio wave	X-ray		
Internet usage	Yes	f	12	19	40	111	182	χ^2 = ,491, sd=1, p= ,483
		%	6,6	10,4	22,0	61,0	100,0	
	No	f		3	5	9	17	
		%		17,6	29,4	52,9	100,0	
	Total	f	12	22	45	120	199	
		%	6,0	11,1	22,6	60,3	100,0	

According to Table X, only 22.6% of the students could provide the right answer to the question "What kind of a wave or ray is used in MR devices?" the question correctly by saying radio wave. The majority of the participants; however, could not provide the right answer to the operation principles of this device. The $\chi 2$ analysis, conducted to determine the relation between physics department students internet usage and their answers to the question "What kind of a wave or ray used in MR devices?", yielded results indicating no significant relation between them ($\chi 2$ =0.491; sd=1; p = 0.483 >0.05).

Discussion

Young adults receiving physics education at the universities are expected to have high levels of information in the subjects where physics is related to technology. These students are also expected to correlate between scientific and technological events in daily life and hence be science literates.

The sample of the study consisted to 64, 8% of male and to 35, 2% of female students. 91% of the students used internet. In the relevant literature, there are several studies in line with our findings. Atav, Akkoyunlu, & Saglam(2006) found in their study that 87% of prospective teachers were using the internet and Basaran (2005) determined the internet usage ratio of future teachers as 83%. Similarly Keles, Ipek, & Sahin (2008), as well as Çatlioglu & Kutluca (2008) determined the internet usage ratios of prospective teachers as quite high. Kiyici & Altintas (2010), like Kilinç (2010) determined a high competence in using basic technology. Nevertheless, Erdemir, Bakirci, & Eyduran (2009), study determined that teacher candidates did not consider themselves sufficient in using internet and computer for educational purposes.

Though there was no statistically significant relation between physics students' internet usage and gender, male students used internet more than female students. Similarly Cavus & Gokdas (2006) indicated that there was no statistically significant difference among the physics students' internet usage according to their genders; however, female students benefited more from the World Wide Web than their male counterparts. The differences in the findings of the present study might be attributed to the differences in the demography of the participants.

No statistically significant relation was found between the participants' current grades and internet usage. Whereas the findings of Keles, Ipek, & Sahin (2008), and Tokcan (2008) are supporting our findings, the findings of the study conducted by Erdem (2010) determined the internet usage to be changing according to the classes of the students. However, the findings of Yetisir & Kaplan(2006) are similar to the findings of the present study.

There was not any statistically significant difference between the internet usage levels of the students and their former schools. Whereas the findings of Börü (2001) are supporting our findings, Erdem (2010) determined that internet usage varied according to graduation.

Likewise no statistically significant difference was found between physic students' internet usage and parental educational status.

The fact that a considerable number of participants assume that both wired and mobile phones operate with sound waves, is one of the disappointing findings of the present study indicating a lack of knowledge regarding the operation principles of these devices. They could not consider that if sound waves were transmitted, the shortest conversation between two short spots would take hours. A great majority of the physics students are expected to provide the right answer to this question. The underlying reason of this fact might be that in the physics classes taught from the primary grades until the tertiary level, no connection is made between daily life and the science.

Bozkurt & Ingec (2008) determined that the level of ninth graders in correlating physical concepts acquired in the physics courses with daily life was moderate. Devecioglu & Akdeniz (2006) indicated that prospective physics teachers could not correlate fundamental concepts of physics with the events in daily life adequately. Erduran & Yagbasan (2003) determined that second graders in high school had difficulties in applying concepts of magnetism to new events confronted in their daily lives; whereas, Pinar & Demirci (2006) determined that the students could not adapt the knowledge about power to their daily lives easily. Kaptan & Kusakci (2002) together with Yigit & Akdeniz (2002) indicated that the level of most of the students was very low in correlating science course subjects with their daily lives. Prosser (1994) determined that the conceptualization of some subjects regarding electricity was low. Yildiz et al. (2006) indicated that three undergraduate chemistry education students in correlating their information about acids and bases with daily life were moderate. Similar results were obtained in the study of Ayas et al. (2001) regarding science education teachers and in the study of Ozmen (2003) regarding prospective chemistry teachers. Mübeccel et al. (2005), determined that only a small group of students (5%) learned the subject meaningfully. Yuzbasioglu & Atav (2004), Gurses et al. (2004) emphasized in their studies that the failure of students was due to teaching the subjects mainly as scientific concepts without relating them to student's lives. Hoffmann, Haeussler & Lehrke (1998) have shown in their study that showing usage of science subjects in daily life made the lessons more interesting for the students. Kose et al. (2008) found that were able to associate subjects related to biology highly to their daily proceedings. According to Mc Keough, Lupart & Marini (1995), transferring knowledge acquired in schools to real life is the main target of science education.

The results of many studies, determined that physics could not effectively be taught using laboratories due to reasons such as crowded classes, lack of materials, constant pressure of covering the curriculum in time, lack of teacher experience, motivation, university enrolment system. These might be the underlying reasons why many of the concepts in physics are abstract and vague terms for students.

The results of TIMSS, OECD and PISA studies showed also that the success desired in science education is not achieved in Turkey (TIMSS, 2009; PISA, 2005). The basic problem of science education in our country is the little association of new developments to technology and the society within the traditional curriculum in current programs. An overloaded science curriculum, isolated from daily life, students lacking abilities to transfer science concepts to changing situations, lack of interest to science classes are some of the problems that science teachers and hence science education faces (Gilbert, 2006).

Relevant studies emphasize that the necessity of teaching materials widely (film-TV, overhead projector, sound recordings, computer and internet) for effective science education. The underlying reason of the participants' low association levels of physics' concepts with technology might be the low level of importance given to technology in the curriculum of their former schools. The findings of the present have shown that ultrasound and magnetic resonance knowledge are lacking in physics students. The underlying reason for this deficiency might be the lack of information acquired throughout their previous education.

Results And Implications

Our era, in which knowledge is rapidly renewed and reproduced, makes for the future of the individuals as well as the society information access, usage, and production obligatory. Following the most recent developments in science and technology and making the best use of them is a precondition of a modern society and is relevant to the society in large.

According to the findings of the study:

- There was no statistically significant relation between physics students' internet usage and their gender. Although there was not any statistically significant relation between physics students' internet usage and their grades, it was the highest in the 1st graders decreasing towards the upper grades,
- No statistically significant relation was determined between physics students' internet usage and their former graduation school types. There was no significant relation between physics students' internet usage and paternal educational background.
- There was no statistically significant relation between physics students' internet usage and their mobile phone usage periods,
- No statistically significant relation was determined between physics students' internet usage and the answers they provided to the question "What kind of a wave is transmitted in wired telephones?"

- No statistically significant relation was determined between physics students' internet usage and the answers they provided to the question "What kind of a wave is transmitted in mobile phones?"
- No statistically significant relation was found between physics students' internet usage and the answers they provided to the question "What kind of a wave is transmitted in fiber optic cables?"
- No statistically significant relation was found between physics students' internet usage and the answers they provided to the question "What kind of a wave is transmitted to the human body by means of ultrasonography devices?"
- No statistically significant relation was found between physics students' internet usage and the answers they provided to the question "What kind of a wave or ray is employed in tomography devices?"
- No statistically significant relation was found between physics students' internet usage and the answers they provided to the question "What kind of a wave or ray is employed in MR devices?"

According to the result of the present study, following implications can be made;

- Necessary regulations are to be made in school curriculums in order to enable students understand and use highly developed technology and to comply with innovations. Applied Physics Course should be given within the curriculum of physics department. The use of physics in technology is to be highlighted within this course.
- Education enabling all individuals gain the competences projected by recent technologic enhancements is to be provided. Technology education in our schools is to be redesigned by taking International technology education association (ITEA) criteria into consideration.
- Elective courses including content knowledge subjects are to be in incorporated into the curriculum of university students. They should be enabled to have theoretical knowledge about technological applications practically by asking why and how.
- Research projects related with technology should be given to the physics department students at the Science Faculty.
- A connection should be provided between the course subject and daily life by giving examples from daily life in all science courses from primary school to university.

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