Determining the Technological Terms Awareness of Pre-Service Teachers

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Abstact

The purpose of this research is to develop a valid and reliable measurement tool that can be used in determining the pre-service teachers' awareness and knowledge levels of technological terms and to determine the pre-service teachers' awareness of technological terms. In this research carried out by the survey method, data collected by questionnaire developed by the researchers and obtained 1106 pre-service teachers. The data were analyzed through the SPSS 15.0 package program. The results show that the technological term awareness of the male pre-service teachers are more versatile than the female pre-service teachers'. Finally, it can be clearly seen that as the grade level and income level increase, the awareness also increases and as the income level decreases, the awareness decreases correspondingly.

Key Words: Technological terms, technological term awareness, pre-service teachers

Introduction

Technology can be identified by being classified as *object* (materials, tools, weapon, and machine), *information* (knowing the development of technological innovations), *activity* (people's skills, methods and predictive power), *method* (need and analysis), and *socio-technical system* (combining individuals and other objects, produce and use objects) in various ways and in different areas (Web, 2011). Technology has made its products and communication tools essential part of our lives by developing rapidly from the existence of humanity. In order to humanity's benefitting from technological tools at a level of facilitating their lives, technological developments should improve in parallel with society's requirements and it should be comprehensive for the individuals of the society (Bacanak et al., 2003; Kalkınma Bakanlığı, 2012). In our day, changes stemming from the intense use of information and communication technologies make it essential for the individulas and societies to commune with technology in all parts of the life (Ünal Bozcan, 2010). This situation makes the use of technology necessity not a privilege and changes the qualification of individuals that society needs in this direction. (Gündüz & Odabaşı, 2002; Ünal Bozcan, 2010; Yılmaz, 2007). Besides, it has revealed that individuals who can produce information apart from those who have life long learning skills, who can always follow the developments and renew their knowledge, keep up with the changes, and be a conscious information consumer (Akkoyunlu & Kurbanoğlu 2003; Kahraman, 2005).

When considered from the societal aspect, it can be stated that the development of a national economy bases on the society's awareness and literacy qualifications (Forcier, 1999 in Kahraman, 2005). Especially after 1990s, the scope of the literacy concept has expanded depending on the technological developments, the life standards in cities and recent needs, and no longer has it involved plural facts (Altun, 2005 in Aşıcı, 2009).

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Literacy starts with words. When related literature is analyzed, it is seen that people should have awareness and knowledge on related terms and conceptions even if in a baseline level in order to be literate in an area or subject (Bybee, 1999; Li, 1999; Miller, 1989; Shamos, 1995). Miller (1989) classified science literacy into three levels as (1) understanding the scientific methods, (2*) understanding the scientific and technological basic terms and concepts,* and (3) understanding the effect of science and technology on society (Li,1999). While Shamos (1995) describes functional science literate as an individual who *writes, reads and understands the scientific terms* and discusses them in scientific papers; Bybee (1999), identifies functional science literate as an individual who *knows the words,* but who is weak in associating them with the subject, that is, who memorizes the words and terms. One person's reaching conceptual and procedural science literacy and being able to use and understand the ideas about scientific experiment discussions and laboratory researches depend on their knowing the related terms (Çepni et al., 2009; Işık Terzi, 2008). For example, an individual needs to know basic computer concepts and definitions, most widely used computer terms and, programming concepts to be the computer literate (Yazıcı, 2006). Penrod and Douglas (2002) stated that understanding the language and terminology of information technology is one of the information technology literacy skills. This situation leads us the conclusion that literacy such as computer, science and technology, information and communication technologies and technology literacy substantially base on the individuals' awareness on technological terms (terminology). Therefore, *technology literacy* should be considered as accessing technology, using technology, evaluating technology and effective use of technological terms in communion, in other words, it should be regarded comprehensively in order to involve technological term awareness. In this process, each individual needs to have technological term awareness at a minimum level in order to existing technologies be used efficiently.

The rapid development of science and technology affects the education applications as well as it does in all parts of the society (Öztürk et al., 2011). Consequently, in modern societies it becomes inevitable for teachers to use technology not only as a tool but also as an objective. It is clear that technology has a great role and importance in teachers' benefitting from suitable technologies in teaching activities, students' being more active in classes, their learning subjects more easily, information's being carried into the long term memory and providing a concrete experience. Especially in the elementary school students' who are at concrete period according to Piage's theory of mental development, needing first hand experiences and in their passing through the formal operation period, the use of technology has an important place (Doğan et al., 2010). During this process, in technology's being used as a teaching tool, teachers' efficiency in this area (Seferoğlu, 2008), their ability of using technology and their technological term awareness make this role stronger and stronger.

Educational institutions, teachers and parents face with the students who use computer, video, mobile phone, who watch visual and audial broadcast in digital platforms, who do image, sound and data transferring in almost everyday in their daily lives and who are accustomed to such technological products day by day (Çavdar, 2012). On condition that teachers can not develop their skills of using technological products which can be accessed in existing conditions, they will face with various difficulties in meeting the students' needs and requests (Aksoy, 2003). When teachers' not being aware of the technological terms is added to this situation, the number of the problems that are encountered will increase and their solution will become more difficult.

Raising individuals who are technology literate is one of the main educational program objectives of many countries. It is in focus that the way of raising these individuals as technology literate is up to teachers (Adıgüzel, 2005). In order to achieve this goal, teachers should be technology literate in a sufficient level and they should efficiently practice it in-class activities by associating them with technological information that they have, their field information and pedagogic information (Angeli & Valanides, 2009; Koehler & Mishra, 2008; Mishra & Koehler, 2006). Three of the seven variables which determine a teacher's professional competence are technological information, technological field information and technologic pedagogic information (Mishra & Koehler, 2006;

Thompson & Mishra, 2008). When these are combined with other four variables, a teacher should have efficient technological pedagogic field information (Özsevgeç & Çalık, 2012). This conception presents how crucial technological information is in a teacher's career. The individuals educated by teachers who have technological pedagogical field knowledge and practice it in their classes effectively, will carry our nation to higher places in the international exams such as TIMSS, PISA, PIRLS.

There is a consensus that today's children live in an environment surrounded by technology. Prensky (2006) claims that, children of today are digital natives, who use the digital language of computer, play video games and internet fluently. In other words, compared to their peers of 20 years ago, the world in which today's children live confronts us as an online life style in material environment conditions. However, it doesn't mean that they are technology literate (Judson, 2010). Many students use technological terms in their daily life but they don't know their meanings and what features they carry. In order to educate, guide and gain students the learning skills of learning, teachers need to include information technologies into their own educational activities and design more productive educational environment, choose suitable technological products and use them properly. This situation arises the need of teachers' following the ever growing technology and being aware of the terminology of technological products, that is to say jargon. It is mostly related to the pre-service teachers whose education goes on. Because a digital world consisting of technological terms like Facebook, Twitter, 3D, HD, Blogger, MMS, Wi-Fi, Youtube, 3G is waiting for them. The most important step to reach the goal is from their undergraduate education qualifying pre-service teachers' information level on related terms by researching their awareness on technological terms and supporting this process with their formal education. These days in which the speed of accessing the knowledge and source changes rapidly and in which the speed of accessing the internet from mobile phones is 1000 Mps will be slower compared to the future. At this point, it is very important that a teacher who wants to keep up with the changes in speed and live and compete in the same environment with their peers around the world, should be aware of the new technological words and know their meanings. Pre-service teachers' awareness towards the current technological terms enables future digital learners to be educated more powerful and qualified. Thus, when they become teachers, they will play an effective role in developing students' skills such as technology, information technologies, computer literacy; and will meet the needs of rising generation. Besides, they will realize digital education in accordance with its purpose and they will contribute to consist of a conscious generation in technological word.

Although it is not easy to be aware of the mostly English origin technological words that we have to use often in daily life and in the internet and follow these terms, pre-service teachers need to use and know them in order to be able to use the internet sufficiently. It is a fact that in their professional practice degrees pre-service teachers' meeting the needs of students who have advanced technological awareness and knowledge is possible with having information about the ever growing technological terminology. In this regard, pre-service teachers' using technology and technological terms efficiently has become not a privilege but an obligatory (Gündüz & Odabaşı, 2002). In their undergraduate education, it is aimed at pre-service teachers' knowing various technologies such as computer, internet, multimedia, and digital platforms and gaining the skills of using these technologies in their teaching (Göktaş et al., 2008). However, the rapid change and development in technology prove that technological term literacy is not a step that can be completed once and it should be carried on lifelong (Kahraman, 2005).

Pre-service teachers' knowing basic technologic terms will enable them to have competence such as increasing the quality of life by using them in daily life, being able to use it for accessing the knowledge and for fun (Obut, 2005; Yağız, 2007), being able to follow and discuss about the technological innovation (Yazıcı, 2006; Kılınç & Salman, 2006), being able to compare technological products at a certain level and suggest the privileged one. A pre-service teacher, who acquires these competences, will have covered a lot of ground in gaining technological term literacy as well as having the awareness of technological terms. It is a clear fact that pre-service teachers' awareness about technological terms that they use in their daily life will contribute to both their own development and students' development.

In order to pre-service teachers' being able to use technology sufficiently in their educational activities, design educational environments, suitable for the developing technology in today's condition, and to be more successful, they need to gain technological term awareness and knowledge in the environments structured in educational faculties.

At this point, there hasn't been found any valid and reliable measurement tool that can be used for determining and evaluating pre-service teachers' technologic term awareness and their information level in the literature review. Via the measurement tool that will be developed in this study that is carried out, this deficiency will be made up and also important information about pre-service teachers' technological term awareness, will be provided for the literature.

The aim of the research carried out in this regard is to develop a valid and reliable measurement tool that can be used in determining the technological term awareness and knowledge level of pre-service teachers and to determine the pre-service teachers' technological term awareness with the developed measurement tool.

Research Problems

Within the scope of conducted study, among the pre-service teachers' technological term awareness answers for the following questions will be searched.

1. Is there a significant difference according to their programs in which they study?
2. Is there a significant difference according to the class level?
3. Is there a significant difference according to gender and level of income?

Method

In this study, survey model was applied. Survey model is an approach which aims at describing a situation that existed in the past or still existing as it is (Cohen & Manion, 1994; Çepni, 2009). The individual, object or event subjected to the research are tried to be described regarding their own conditions and as they are (Karasar, 2009). Survey method is suitable for this study because pre-service teachers' determined technological term awareness is tried to be found out and they are tried to be described.

Research Group

This study was carried out with randomly selected 1106 pre-service teachers who were studying at programs in different departments in Fatih Faculty of Education in Karadeniz Technical University, in 2010-2011 academic year, spring term. Within the scope of the study, 1120 pre-service teachers were conducted the measurement tool, however because of different reasons such as missing despondence, random despondence, incorrect despondence, 14 questionnaires were removed from the study and totally 1106 pre-service students' responses were taken into consideration. The descriptive statistical value of the sample whose average age is 22 is presented in Table 1.

Table 1.
The range of pre-service teachers according to programs, class levels and gender

Programme	Grade				Total
	Freshman		Junior		
	Boy	Girl	Boy	Girl	N
STIP	24	49	24	54	151
MTP	11	57	19	45	132
CTP	40	64	30	54	188
CITP	38	30	29	21	118
SSTP	39	34	39	38	150
HITP	12	29	6	23	70
TTP	21	35	15	25	96
PTP	8	72	8	55	143
MscTP	12	26	4	16	58
Total	205	396	174	331	1106

STIP: Science and Technology Instruction Program *MTP: Mathematics Teaching Program*
CTP: Classroom Teaching Program *CITP: Computer and Instructional Technology Program*
SSTP: Social Sciences Teaching Program *HITP: Hearing Impaired Teaching Program*
TTP: Turkish Teaching Program *PTP: Pre-School Teaching Program*
MscTP:Music Teaching Program

The sample consisted of 65,7 % (727) female and 34,3 % (379) male pre-service teachers who took part in the study. The information about how many people were taken from which program to form the sample is presented in Table 1.

Data Collection Tool

In this study, Technological Term Awareness and Knowledge Questionnaire (TTAKQ) that consists of four parts and was developed by researchers with the aim of reaching large masses was used as data collection tool.

In the process of developing the questionnaire, firstly a literature review was done. The studies that were done on literacy types including technology such as computer literacy, information technology literacy, e-literacy, information literacy, technology and science literacy (e.g. Miller, 1989; Li, 1999; Penrod & Douglas, 2002; Akkoyunlu & Kurbanoğlu, 2003; Bacanak et al., 2003; Adıgüzel, 2005; Kahraman, 2005; Kılınç & Salman, 2006; Yazıcı, 2006; Işık Terzi, 2008; Aşıcı, 2009; Judson, 2010; Özsevgeç, 2011) and the data gathering tools that were used in these studies were analyzed in details. Later on, web sites devoted to technological products (e.g. www.bimeks.com.tr, www.teknolojix.com), social sites (Facebook, Twitter, Youtube etc.), mostly used terms in these sites, most sold technological products, informatics dictionaries, books (e.g. Akpınar, 2005) and the digital platforms in the web environment were analyzed. As a result of the literature review and other done analysis, a term pool was formed by having been decided to the terms mostly used in daily life. In order to determine the pre-service teachers' most used and familiar terms, from this pool, a pilot questionnaire including 107 terms that were determined regarding the researchers' experiences and views of other researchers who are qualified in their fields, was administrated to 97 junior pre-service teachers who were studying at classroom teaching and science and technology teaching programs. As a result of this study, 85 terms whose frequency value was bigger than 10 were determined and it was continued to develop the questionnaire in order to establish pre-service teachers' technological term awareness related to these terms.

"Technological Term Awareness and Knowledge Questionnaire" that was developed in this study (TTAKQ) has four parts. In the first part, there are questions that were asked to determine the socio-demographic features such as the students' gender, age, the program that they studied, parents' educational situation, level of family income, owing to a computer and using time. In the second part of TTAKQ, it was aimed at determining the pre-service teachers' technological term awareness with

85 established terms. Pre-service teachers were asked to mark the ones that they are familiar with among the terms having presented to them in the second part and one section of which is presented as an example (Table 2).

Table 2.
85 technological terms in the second part of the TTAKQ

(T1) 3G	(T18) Mouse	(T35) PC	(T52) Megapixel	(T69) Zoom
(T2) Plasma	(T19) GSM	(T36) Digital	(T53) HD	(T70) Multimedia
(T3) LCD	(T20) Bluetooth	(T37) Byte	(T54) USB	(T71) Pixel
(T4) Notebook	(T21) RAM	(T38) e-mail	(T55) ADSL	(T72) Play Station
(T5) MMS	(T22) Netbook	(T39) WAP	(T56) Mp3, Mp4 player	(T73) CD-ROM
(T6) e-book	(T23) DVD-ROM	(T40) 3D	(T57) LINK	(T74) HTML
(T7) MSN	(T24) X-ray	(T41) Mhz	(T58) IP	(T75) Polyphonic
(T8) Touchscreen	(T25) Egualizer	(T42) Wi-Fi	(T59) LED	(T76) GPRS
(T9) PIN	(T26) Data	(T43) CD	(T60) Desktop	(T77) Harddisk
T10) Flash Memory	(T27) Scart	(T44) Gigabyte	(T61) Java	(T78) VGA
(T11) Handsfree	(T28) CPU	(T45) 16:9 mode	(T62) İntel	(T79) Wireless
(T12) ROM	(T29) Tripod	(T46) Hertz	(T63) DivX	(T80) EDGE
(T13) Contrast	(T30) GPS	(T47) DVD-writer	(T64) Ethernet	(T81) BIT
(T14) JPEG	(T31) Touch pad	(T48) İnfrared	(T65) Core Duo	(T82) MPEG
(T15) Line input	(T32) Blu-ray	(T49) DVD-RAM	(T66) Inch	(T83) URL
(T16) Proxy	(T33) Memory Stick	(T50) GSM tool	(T67) Micro SD	(T84) DVD
(T17) CSD, MMC, MS, XD, MS	(T34) DNS	(T51)Face Detection	(T68) Windows mobile	(T85) Decoder

In the third part of TTAKQ, pre-service teachers were asked to state the features about the technological tools such as television, computer, camera and mobile phone that are mostly used in daily life, by using the related terms in the tables having presented separately for each one. In the last part of the questionnaire, the levels of technological term knowledge were searched with open ended questions by having used first 20 terms which had the most frequency in the pilot study. Since the aim of this study is to determine the pre-service teachers' technological term awareness, within the study, the data that were obtained from the first two parts of the developed questionnaire were used as findings.

The developed TTAKQ is a classification type scale as it is seen in Table 2. The subjects who responded to the questionnaire were asked to mark the ones which carry the required features among the presented choices and by this way their frequency was calculated. The data obtained from the questionnaire were intended to calculate frequency so that it wasn't possible to estimate the reliability co-efficient of the questionnaire and to do a reliability analysis. Since the questionnaire is a classification level scale and consists of unit system which is represented with whole number, also makes it impossible to do a reliability analysis. Intended to the validity of the questionnaire, providing its content validity is tried to be realized and it was analyzed by the educational faculty academic members who are specialists in their fields, and the content validity of the questionnaire was provided in accordance with a common ground. A measurement tool's having content validity provides important information about the fact that the reliability of the related tool is at a reasonable level (Cohen & Manion, 1994; Çepni, 2009).

Data Gathering and Analysis

The data obtained from TTAKQ were firstly transferred to Excel worksheet that was prepared by the researchers and they were classified according to the programs in which pre-service teachers who took part in the sample study. The data of the questionnaire's second part are discontinuous and rated so their analyses were done with non-parametric statistical tests in the SPSS 15.0 packet program.

The data obtained from the first part of the questionnaire were tabulated after their frequency was calculated. The data obtained from the second part were analyzed by having used Chi-square Compliance Test. Chi-square test refer to Chi-square Compliance Test in this text. Chi-square test which is one of the most used tests among the parametric tests, measures whether the range of the values in the sample is consistent with the main populace range that was claimed in the hypothesis or not. It is named as "Compliance test" as the compliance between the expected values and obtained values was searched (Kalaycı, 2008, p.86). It is indicated that in order to use Chi-square test which is an analysis method that tests whether an object or an individual that reaches the level of a categorical variable shows any significant difference or not, between tick marks whose expected value is less than five, shouldn't be more than 20% of the between tick marks and this value should be more than one in all categories (Büyüköztürk, 2010). Within this scope, before having conducted Chi-Square test for each term, crosstabs were created and weighting was done. In the analysis of Chi-Square test, for the degree of freedom (df)=1, the situation on which the expected value is less than 5 in one of the pores and for df>1; the situation on which the expected value is less than 5 pore numbers exceed 20% were not put on the analysis.

In the large scale tables formed due to the extra number of terms in the level of presenting the data analysis, it is tried to increase the legibility by including the analyses results in which there is only significant difference between the values. Within this scope, terms were presented by indicating the term numbers as it can be seen in Table 2. Also, in interpreting the analysis of Chi-square test analysis results within group percentage (%) values were taken into consideration and the obtained findings were presented to the readers as tables.

Results

In this section, the findings obtained as a result of statistical analysis of the collected data for the purposes of the study are given.

The findings of the first research question "Is there a significant difference in pre-service teachers' technological terms awareness according to the program they major?":

In the context of this research question whether there is a difference between programs pre-service teachers major in the education faculty and technological terms they are aware were investigated. Names of programs have been given by the abbreviations are expressed as in Table 1 and terms have been provided with term numbers are used in Table 2. The results of Chi-Square Test analysis for the first research question are shown in Table 3.

Table 3.
The Relationship Between Programmes Pre-service Teachers Major in and Technological Terms Awareness, Chi-Square Test Results

Term Number		Programs
1, 20		STIP
3, 10		MTP
9, 18, 70		CTP
2, 7		MscTP
-	p< .05	SSTP
-		HITP
4		TTP
-		PTP
5, 6, 8, 9, 11-17, 19, 21-69, 71- 85		CITP

According to the results of Chi Square Test the great majority of the significant difference 85 terms (of the total 75 terms) were on behalf of the Computer Education and Instructional Technology program. While 2 terms (3G and Bluetooth) resulted on behalf of the Science and Technology Education, 2 terms (LCD and USB) resulted on behalf of the Mathematics Teaching program, 3 terms (PIN, Mouse and Multimedia) ended up on behalf of Classroom Teaching program. Finally, 1 term (Notebook) resulted on behalf of Turkish Teaching program and 2 terms (Plasma and Msn) resulted on behalf of Music Teaching program. Any significant differences for awareness in terms of tendered to pre-service teachers major in Social Sciences, Hearing Impaired and Preschool Teaching programs weren't found.

The findings of the second research question "Is there a significant difference in pre-service teachers' technological terms awareness according to the grade level?":

According to the results of Chi-Square Test be done for each of the 85 terms and to determine whether there have been significant differences in technological term awareness of pre-service teachers according to grade level they study identified significant difference for 14 terms and they are given in Table 4.

Table 4.
The Relationship Between Pre-service Teachers' Grade Level and Technological Terms Awareness, Chi-Square Test Results

Term No	**Grade Level**		**Analysis**		**Term No**	**Grade Level**		**Analysis**	
	Freshman	Junior	X^2	p		Freshman	Junior	X^2	P
3G	93,2	**95,0***	6,154	p<.05	Netbook	70,2	**71,3***	4,916	p<.05
Plasma	92,7	**96,2***	4,833		Tripod	15,5	**26,8***	7,737	
Notebook	92,2	**95,0***	5,296		Byte	79,9	**82,8***	4,281	
MMS	79,7	**82,8***	4,148		e-mail	88,7	**92,1***	4,633	
MSN	94,5	**98,0***	5,013		Wap	61,1	**61,8***	4,455	
Mouse	93,8	**96,6***	5,490		Wi-Fi	**56,7***	51,1	11,244	
Bluetooth	94,5	**97,4***	5,449		Windows mobile	**47,1***	43,6	7,891	

It can be seen in Chi Square Test results that the significant difference for the 2 terms (Wi-Fi and Windows mobile) is on behalf of the freshman pre-service teachers and for the other 12 terms (3G, Plasma, Notebook, Netbook…) are favor of junior.

The findings/results of the third research question "Is there a significant difference in pre-service teachers' technological terms awareness according to the gender and income level?":

According to the results of Chi-Square Test be done for each of the 85 terms and to determine whether there have been significant differences in technological term awareness of pre-service teachers according to gender the significant difference have been identified for 68 terms. Because of the number of terms showing significant differences in favor of girls is limited, they have been made clear. The number of terms showing significant differences in favor of boys is more and so they take too much room by volume in the text. Because of that reason, only term no, p significance level and the difference is in favor of which gender are given in Table 5. The clean expressions of terms are shown in Table 2.

Table 5.
The Relationship Between Pre-service *Teachers' Gender and Technological Terms Awareness, Chi-Square Test Results*

Term No		Gender
7, 36		Girl
1-6, 8-10, 12, 13, 18-23, 26-28, 32, 34, 35, 37-58, 61-65, 67-82, 84,	p<.05	Boy

The result of the analysis shows that the significant difference of the 2 terms (MSN and Digital) is on behalf of the female pre-service teachers, however, for the other 66 terms it is on behalf of the male pre-service teachers. The Chi-Square Test for each of 85 terms was showed that there is a significant difference for all the terms based on the family income and almost all of it regarding the upper income group.

Table 6.
The Relationship Between Pre-service Teachers' Family Income and Technological Terms Awareness, Chi-Square Test Results

Term No		Family Income
-		500-1000 TL
-	p<.05	1000-1500 TL
1		1500-2000 TL
2-85		2000 + TL

The meaningful difference for 1 term (3G) is on behalf of the pre-service teachers whose family income level is about 1500-2000 TL, on the other hand, for the other 84 terms it is on behalf of the pre-service teachers whose family income level is at least 2000 TL.

Discussion

When the results of Chi-Square test were analyzed, it is interpreted that the significant difference observed in the pre-service students technological term awareness according to their programs, it is proved that there are significant differences; for only one term (Notebook) is in favour of the pre-service teachers studying at Turkish teaching program, for 2 terms (3G and Bluetooth) is in favour of the pre-service teachers studying Science and Technology Instruction program, for 2 terms (LCD and Flash Memory) is in favour of the pre-service teachers studying at Mathematics teaching program, for 2 terms (Plasma and MSN) is in favour of the pre-service teachers studying Music teaching program, for 3 terms (Pin, Mouse and Multimedia) is in favour of the pre-service teachers studying at Classroom teaching program and there isn't any significant difference in favour of the pre-service teachers who are studying Social Sciences, Hearing Impaired and Pre-School teaching programs (Table 3). Although it is an expected situation that for seventy five terms there is a significant difference in favour of the pre-service teachers who are studying at Computer and Instructional Technology programs, it is surprising that this difference includes a lot of terms. It is thought that such a great difference in the technological term awareness stems from the fact that the pre-service teachers who are studying at Computer and Instructional Technology Teaching program are within the technology as part of the educational programs and technology use is involved in their social life as well as a major part of their education life. It is pointed out that the terms whose awareness has significant difference statistically are based on the subject focus information in the undergraduate education. This situation indicates that the lessons taken in the undergraduate education are effective for the learning of technical terms. Besides, these findings are supported with the results obtained from Chiero's (1997) and Usta and Korkmaz's (2010) studies done on teachers' computer use and competence. Though technology develops in parallel with the mathematical developments, it is interesting that there is a significant difference for only 2 terms in favour of the pre-service teachers who are studying at Mathematics teaching program. Based upon the fact that there isn't any significant difference for any terms in favour of the pre-service teachers studying at Social Sciences, Hearing Impaired and Preschool Teaching programs, it can be supposed that the programs in which they study contribute to the technological term awareness of pre-service teachers in these three groups at the same level. In addition, when Social Sciences Teaching program's courses at the undergraduate education level are handled, it is seen that they take 6 credits Computer I and II courses in their 156 credits course range (Özsevgeç, 2011). This percentage's being low suggests that technological term awareness is directly proportional and closely related to the computer and Instruction supported lessons that are taken at undergraduate level education. Besides, regarding that pre-service teachers who study at these programs take the similar lessons, this situation can be explained as Social Sciences, Hearing Impaired and Preschool Teaching programs mainly involves non-math courses and their teaching process bases on the verbal interactions. These findings are supported by the results of Çetin's (2012) study that is related to pre-service teachers' technological competence.

When the results of Chi-Square tests are analyzed, it appears that the significant difference observed in the pre-service teachers technological term awareness according to their grade level is in favour of the freshman pre-service teachers for only Wi-Fi and Windows terms, it is in favour of the junior pre-service teachers for 12 terms such as 3G, Plasma, Notebook, MMS, MSN, Mouse, Netbook, Tripod, e-mail, Wap, byte, Bluetooth, Mouse (Table 4). It can be inferred from these findings that the pre-service teachers' undergraduate education process has an effect on the development of their technological term awareness. The freshman pre-service teachers' awareness on Wi-Fi (wireless fidelity area) technology that is used for accessing the internet from mobiles wirelessly, is found more significant than those who are at higher grades. Besides, that the awareness on windows mobile term is in favour of the freshman pre-service and this operating system can access the internet via Wi-Fi suggests that freshman pre-students use this feature of their mobiles more than those at higher grades. Since the Wi-Fi technology is free or cheap and easily accessible and establishes communication via

radio waves is an important factor in buying mobiles. It can be also suggested that the freshman pre-service students pay more attention to that fact compared to ones at the junior pre-service students. It is remarkable that in higher grade students, significant terms are more related to social media tools. While these are the terms such as terms 3G, MMS, MSN, e-mail, Wap, Byte, Bluetooth used in the communication on social media, at the same time there are terms such as Plasma, Notebook, Netbook, Mouse that are used for different aims like homework, research, document record, watching video, listening to music. This interpretation makes us think that compared to freshman pre-service students, the junior pre-service students use technology for more different reasons, and in multi-communication as an information and communication technology.

When the findings obtained from the Chi-Square tests for each of the 85 terms appearing in the second part of the questionnaire aiming at determining whether there is a significant difference in the pre-service teachers' technological term awareness according to gender are analyzed, it is established that the terms showing significant difference in favour of female students are related to communication and image technology via computer; and the terms showing significant difference in favour of male students are related to mobile phone, television, internet, sound-music and games as well as computer and image technologies (Table 5). It is considered that this situation results from the fact that male students spend a great deal of their time in their social life on playing games with technological tools in virtual platform, and they follow the current developments in in technology in order to enhance facilities for qualifying the time that they spend in this way and they are aware of it. As a support for this finding, Tınmaz (2004), Fendi (2007), Ertürk (2008), Çetin et al. (2012); concluded in their studies investigating into teachers and pre-service teachers' technology competence that male pre-service teachers have a higher technological competence than female pre-service teachers. Also, it is thought that male pre-service teachers are curious about technology and they tend to use technology, so it contributes to this process. Similarly, in Kubiatko et al.'s (2010) study in which he investigated the pre-service teachers' attitude towards the use of information and communication technologies it was found out that, female students have higher attitude points. MSN term which is used for comprehension and communication shows significant difference in favour of female students, and it indicates that female students give more importance to chat and communication compared to male students. This situation demonstrates the level of MSN benefitting from the chat and internet facilities shows differences according to gender. Besides, the awareness on Digital term is in favour of the female pre-service teachers and it can be explained as; in daily life female pre-service teachers more associate technology term's with digital term.

As a result of the Chi-Square tests for each of the 85 terms aiming at determining whether there is a significant difference in the pre-service teachers' technological term awareness according to their level of income, it was determined that there is significant difference for all the terms (Table 6). The findings related to the results of analysis presents that there isn't any significant difference in favour of the students whose monthly income is 500-1000 TL and 1000-1500 TL, and there is a significant difference for one term (3G) in favour of the students whose monthly income is 1500-2000TL and for 84 terms in favour of the students whose monthly income is 2000TL and more. Additionally, it can be seen that the term showing significant difference in favour of the students whose monthly income is 1500 and 2000TL is 3G which is claimed to be a communication right of new generation, most of these 84 terms showing significant importance in favour of the students whose monthly income is over 2000TL are related to the technological products that they can have individually and the products such as notebook, LCD whose value, even if partially, is high. These findings are supported with the results obtained from İşçioğlu and Kocakuşak's (2012) study investigating into pre-service class teachers' technology perceptions. These situations reveal that the individuals whose level of income is high have the opportunity of following technology and having technological tools whose features are higher and this fact has an effect on the pre-service teachers' differences on technological terms. Also, observing no difference in favour of the first two groups (whose monthly income is 500-1000TL and 1000-1500 TL) once more proves that the pre-service teachers whose level of income is low cannot follow technological developments and premium

products and features, and there is a positive and strong correlation between technology possession and economical level. This obtained result adds the information to the literature that as well as differentiating educational institutions at which students study, mental development levels, parents' degree of learning (Özsevgeç, 2002); high purchasing power has also a positive effect on technological term awareness.

Conclusion

In accordance with the findings having obtained from the study, it was found out that technological term awareness of the pre-service teachers who study at Computer and Instructional Technologies Education program is higher than those who study at other departments. Besides, it was concluded that male students' technological term awareness is more "multi-directional", the higher the studied grade becomes, the more technological term awareness increases, the awareness of the students, whose level of income is low, is also lower.

Suitable environments should be created within the scope of faculty, and students should be enabled to use these facilities boundlessly in order to make these students who study at other departments and with a low income, have a good level of technological term awareness like those who study at computer and instructional technology education program. With the aim of students' spending more efficient time with technological tools such as computer etc., technology based activities and homework should be involved in the syllabus. Also, the questionnaire developed for determining the development of technological term awareness of the students who study at computer and instructional technologies education program, can be administered to freshmen, sophomores, juniors and seniors. The terms in the questionnaire having been used in the study should be updated in accordance with the developments in technology, and applied to different or similar sample groups; then the results can be gained to the literature as comparatively. In addition, pre-service teachers' knowledge level on technological terms and their awareness on technological terms can be handled comparatively.

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