TURKISH UNIVERSITY STUDENTS' TECHNOLOGY USE PROFILES AND THEIR THOUGHTS ABOUT DISTANCE EDUCATION

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ABSTRACT
This study presents the results of a survey implemented to investigate Turkish university students' technology use profile and their thoughts about distance education. The sample of the study is 6504 students from four universities in Turkey. The results of the study are reported in five main sections: 1) demographic information of the students, 2) students' Internet and computer-use opportunities, 3) students' computer skills, 4) studying styles of the students, and 5) thoughts concerning Internet-based distance education. The results of this study show that 38% of the students have home computer with an Internet connection, and 64%, 53%, and 30% of the students connect to the Internet for communication, newsgroups, and web searches, respectively. In addition, the findings show that the students prefer to access the Internet from either Internet cafes or their homes. Blended learning is the most favorite learning environment among these students.
Keywords: distance education, computer ownership, technology use survey.

INTRODUCTION

Distance education can be defined as a type of education in which learners and the instructor are apart from each other in terms of time and place (Gunawardena, 2003). In addition, Simonson, Smaldino, Albright and Zvacek (2009) use the term "intellectual distance" in order to define distance education environments (p.9). They also state that new and innovative technologies change the definition of distance education. Early applications of distance education programs included correspondence courses, in which a long period of time was required for the learners and instructor to interact. Recent developments in technology have allowed Internet technologies to be applied to conventional courses in higher education. Accordingly, many higher education institutions have increased the number of their students by providing distance education programs in addition to traditional ones. Educational institutions now make themselves reachable to people who can not attend classes on campus because of factors such as geographic distance or physical disabilities (Molenda & Sullivan, 2003; Molenda & Bichelmeyer, 2005). A recent survey of 2,500 U.S. colleges and universities by the Sloan Consortium found that the 12.9% growth rate for online enrollments far exceeds the 1.2% growth of the overall higher education student population (Allen & Seaman, 2008, p.1). Because of web-facilitated, blended or online education opportunities, the number of students in distance education continues to grow all over the world.

A short history of distance education (DE) in Turkey

Following the establishment of the Turkish Republic, the educational system has experienced radical changes as a result of politics and cultural fluxes. Administrators were directed toward new educational approaches. The establishment of the Correspondence Course Center (CCC) in 1958 was a noteworthy event in the development of distance education in Turkey (Alkan, 1987). The CCC offered courses such as technical knowledge courses for adults and preparation courses for those taking external exams. Also in 1958, the Instructional Film Center (IFC) began to produce educational movies. The Education with Radio Unit was established under the IFC, and its name was then modified to the "Film, Radio & Graphics Center." This center initiated educational broadcasting in 1968 (Egitek, 2006; Agaoglu, Imer & Kurubacak, 2002). In 1982, the Open Education Faculty (OEF) was established by Anadolu University; this was later included in the list of Mega Universities by Sir Daniel (Daniel, 1996). The OEF has a significant place in the history of distance education in Turkey, since it made a name for itself not only in Turkey and but also in the world in relation to its multitude of students (Picciano, 2001; Simonson, Smaldino, Albright and Zvacek, 2009). The OEF started to offer courses through printed materials and broadcasting by enrolling 29,445 students. Then, radio programs, video education centers,

computer centers, CD-ROMs, other technological developments, and the Internet have also been used to transmit courses offered by the OEF (Demiray, 2002; 2005). Today, the OEF continues to provide higher education for more than 600,000 students.

According to Asgun et al. (2007) the most effective way to become an information society is to benefit from distance education. Distance education is often used for lifelong learning. It provides a solution for the limitations of geographical conditions, and it is the most effective way to obtain more qualified labor. The importance of a qualified workforce in the country was emphasized by the Vision 2023 report of the Turkish Scientific and Technical Research Council (Tubitak, 2004). The report proposed a reconstruction of the Turkish Higher Education system to bring it up to date with the advances of the information era. According to this report, the aim of the new educational system should be "to develop individual creativeness, to create new learning opportunities to improve individuals' skills at the highest level by taking into consideration their individual differences, to provide flexible time and space to learners for learning and to focus on an educational approach which emphasizes learning and human values" (Tubitak, 2004, p.11). Since there is currently a high demand for university educated professionals in Turkey, it is obvious that educators will desire new methods to educate greater numbers of university students. Integrating technological innovations into conventional education effectively is one of the most promising ways to create new opportunities for the youth population.

There are learners at the core of learning therefore they are one of the most important components of educational systems. Therefore, learners' characteristics, their thoughts and existing opportunities in a learning environment have a great value to researchers. In addition, before any radical changes are made to the existing educational system completely, the present conditions should be examined in order to prevent possible failures. For these reasons, it is important that a detailed analysis should be conducted for both target learners and the current educational environment before educators attempt to create a distance education program.

In this study, the target group was comprised of students from four Turkish universities in different parts of the country. The aim of the study was to investigate Turkish students' Internet and computer-use opportunities, their level of computer use, their studying styles, and their preference for learning environments. In general, the purpose of the study was to define Turkish students' profiles and thoughts related to web-based education. The results will provide valuable information to interested developers of new distance education programs in Turkey.

METHODOLOGY

Knupfer and Mclellan (1996) emphasized the importance of descriptive research methodology in educational researches. This type of research is essential to understand the points of view of large populations. In this study, descriptive research methodology was used to reveal Turkish university students' profiles and their thoughts of web-based education.

The context

The data were collected in the needs analysis stage of the "e-campus project" managed by Middle East Technical University. The e-campus project was designed to create a heightened student capacity for higher education through the use of information and communication technologies. The project aims to support both lifelong learning opportunities and undergraduate education via the Internet (Yalabık, 2004).

Data collection and data analysis

The data collection instrument was a survey including multiple choice and likert type items. The survey was developed and distributed by Informatics Institute of Middle East Technical University. The survey had three main parts, including thirty-five questions in total. In the first part, the questions were designed to acquire demographical information about the students. The second part included questions about perceived computer literacy levels. The third part was about preferences of the students for learning environments.

Sampling

The data were collected from four universities in Turkey: 1) Kocaeli University, 2) Mersin University, 3) Zonguldak Karaelmas University, and 4) Middle East Technical University. For each university, the number of students in the population and in the sample is shown in Table 1 (The Council of Higher Education, 2004). The number of returned surveys was 6,504 from the total of 107,403 students in the overall student population. Specifically, the percentages of returned surveys were 70.9% from Kocaeli University, 15.8% from Middle East Technical University, 8.1% from Mersin University, and 5.2% from Zonguldak Karaelmas University.

Table 1 *Distribution of students according to the universities*

The Name of the Universities	Number of Students in Population		Number of Students in Sample	
	f	%	*f*	%
Kocaeli University	46717	43.5	4609	70.9
Mersin University	21893	20.4	529	8.1
Zonguldak Karaelmas University	20708	19.3	341	5.2
Middle East Technical University	18085	16.8	1025	15.8
Total	107,403	100	6504	100

RESULTS AND DISCUSSION

The results of the study are reported below in five main sections: 1) Demographic information of the students, 2) Students' Internet and computer-use opportunities, 3) Students' computer skills, 4) Studying styles of students, and 5) Thoughts concerning web-based distance education.

Demographic information of the students (Faculties, Gender, and Age)

The first question was about the faculties that the students belong to. The findings showed that 52% of the students belonged to the Faculty of Engineering and Architecture, 15% to the Faculty of Arts and Sciences, 12% to the Faculty of Education, 13% to the Faculty of Medicine, and 8% to the Faculty of Economics and Administration (Table 2).

Table 2. *Distribution of students according to the faculties*

The Name of the Faculty	Number of Students	
	f	%
Faculty of Engineering and Architecture	3174	52
Faculty of Arts and Sciences	929	15
Faculty of Education	750	12
Faculty of Medicine	804	13
Faculty of Economics and Administration	493	8
Total	6150	100

Regarding gender, 34% of the sample were females and 66% were males. The responses indicated that 70% of the students were 21 years old and above, 16% were 20 years old, 10% were 19 years old, and 4% were 18 years old and below.

Students' Internet and computer-use opportunities

Six questions were asked to draw a complete picture of students' Internet and computer-use opportunities. First, the participants were asked whether they have a home computer with an Internet connection or not. According to the responses, only 38% of the students had a home computer with an Internet connection. This finding indicated that the number of students who have home computers with Internet connections is low in Turkey. However, according to the Turkish Statistical Institute (TurkStat, 2005), only 11.62% of households nationwide have a home computer. Of these, only 5.86% of households have an Internet connection. Today, 30% of households have an Internet connection (TurkStat, 2009). Although there is a serious increase of households' Internet access rate in Turkey from 2005 to 2009, Internet access in Turkey placed at the end of the list among 32 OECD countries (OECD, 2009). In addition, compared the students of this study with the general population, it is clear that the percentage of students (or students' families) in Turkey who have Internet access at home is higher than the national average. Therefore, it might be said that Turkish university students' computer and the Internet ownership have increased dramatically.

Second, the students were asked to evaluate their opportunities in terms of access to information and communication technologies (Internet connected computers) provided by their universities. The results showed that 28% of the students rated their university's computer facilities as poor, 26% very poor, 23% moderate, 17% good, and 6% very good. This indicates that most of the students were not satisfied with the computer facilities available to them at their universities. Further, 23% of the students rated the Internet services on their campus as very poor, 26% poor, 23% moderate, 18% good, and 8% very good (Table 3). As with their ratings of technological access opportunities, a large percentage of the students were not satisfied with the Internet opportunities available to them at their universities. The results are parallel with the findings of other studies. For example, Karahan and Izci (2001) showed that 77% of a small group of Turkish University students rated campus Internet opportunities as insufficient, whereas only 4% found these facilities sufficient. Atav, Akkoyunlu and Saglam (2006) revealed that 0.8% of the teacher candidates connected to the Internet from their universities. These results show that students are dissatisfied with the infrastructure of the universities. Therefore, we can

conclude that more ICT related opportunities are still needed to serve students in Turkish universities. This is very valuable for distance education projects. If students cannot access e-materials, they cannot follow their courses.

Table 3. *Students' opinions about computer and Internet-use opportunities provided by their universities*

Scale	Computer Opportunities		Internet Opportunities	
	f	%	*f*	%
Very Good	394	6	529	8
Good	1099	17	1189	19
Moderate	1512	23	1513	24
Poor	1777	28	1675	26
Very Poor	1639	26	1464	23
Total	6421	100	6370	100

Third question was about the length of connection time to the Internet which was required for the students to complete their coursework. The responses showed that 45% of the students connected to the Internet for a total duration of 1 to 6 hours in a week, 8% accessed the Internet from 7 to 12 hours a week, 4% accessed it for 13 to 24 hours a week, 5% for more than 24 hours a week, and finally, 38% never connected to the Internet at all to complete their course requirements (Table 4). It can be seen from these results that 62% of the students used the Internet for their courses. In another study conducted in 2001, it was found that approximately 44% of the students accessed the Internet for their courses (Karahan & Izci, 2001). Similarly, another study showed that 80% of the students connected to the Internet to complete their class assignments (Karim, Zamzuri & Nor, 2009). The results of these studies showed that the proportion of students who used the Internet to complete their coursework increased from 2001 to 2009.

Fourth, the students were also asked to state the length of time they spend on personal Internet use. The responses indicated that 45% of the students connected to the Internet for a total time of 1 to 6 hours, 10% connected for 7 to 12 hours, 4% said from 13 to 24 hours in a week, 5% reported more than 24 hours, and 36% said they never used it for personal purposes (Table 4). To sum up, 64% of the students connected to the Internet for personal purposes. The results of another study showed that 5.6 % of the 12-18 years students never used the Internet and approximately 60% of them connected to the Internet for 1-6 hours (Tahiroglu, et al., 2008). In addition, according to the report of TurkStat, 13.23% of Turkish households had used the Internet in the three months prior to their survey. 81.15% of Turkish households had never used the Internet. Further, 16.80% of the general population from the ages of 16 to 74 years used computers, but only 13.25% of this group used the Internet (TurkStat, 2004). Compared with the results for the students in this study, it can be concluded that Turkish university students connect to the Internet more frequently than the general population. However, 12-18 year students connected to the Internet more frequently than the university students.

Table 4. *The lengths of time during which students use the Internet to complete their course requirements, and in which they access the Internet for personal purposes*

Internet use in a week	Number of Students (Course Requirements)		Number of Students (Personal Purposes)	
	f	%	*f*	%
Never	2479	38	2371	36
1 to 6 hours	2923	45	2869	45
7 to 12 hours	522	8	632	10
13 to 24 hours	237	4	265	4
More than 24 hours	293	5	304	5
Total	6454	100	6441	100

Fifth, the students were also asked to state their purposes for personal use of the Internet. The responses showed that 64% of the students connected to the Internet for communication (e-mail, chat etc.), 53% connected to search for information, and 30% connected to access newsgroups and discussion lists (Table 5). According to the TurkStat report of 2005, most of the households in Turkey which use the Internet connect for the purpose of conducting information searches and to access online services (90.16%). Also, 78.23% of the households use the Internet for communication. Less preferred connection activities are interaction with public authorities (39.97%), training and education (30.71%), ordering and selling of goods-services, and banking (15.95%) (TurkStat, 2005). Today, 72.4% of households use the Internet to send and receive e-mail. Also, 70% of them read an online journal or newspaper and 56.3% of them connected to the Internet to join chat rooms too (TurkStat, 2009).

Compared with the students in this study, it is clear that the students mostly use the Internet for communication, while general households use it mostly for information searching.

Table 5. *Personal purposes reported by the students for connecting to the Internet*

Personal purpose for connecting to the Internet	**Number of Students**	
	f	*%*
Internet for communication (e-mail, chat etc.)	3726	64
Following up newsgroups and discussion lists	1733	30
Information searching	3116	53

Last question was asked to identify the places where the students access the Internet. The responses indicated that 50% of the students connected to the Internet from Internet cafes, 30% from their home, 5% from dormitories, and 4% from a friend's computer (Table 6). A similar study from Turkey showed that 40% of the students connected to the Internet from internet cafes (Atav, Akkoyunlu, Saglam, 2006). This result is very valuable for distance education program planners taking into account that most of the surveyed Turkish university students do not have access to the Internet from their homes.

Table 6.*Where the students access the Internet*

Places where students connect to the Internet	**Number of Students**	
	f	*%*
Internet Cafes	3218	50
Home	1914	30
Dormitory	312	5
A Friend's Computer	242	4
Other Combinations	674	11
Total	6360	100

Students' computer skills

The students' computer-use skills were also investigated, and the results were categorized under three main topics, comprising a total of eleven subtopics. These main and subtopics are: 1) computer basics (operating systems and hardware), 2) office applications (word processing, spreadsheet, presentation, and database), and 3) the Internet (webpage development, Internet browsers, search engines, e-mail, and chat) (Table 7, 8, and 9). In the category of computer basics, the responses showed that most of the students considered themselves good at "operating systems" and "moderate" with hardware (Table 7).

Table 7. *Students' level of computer-use skills –* ***Computer Basics***

	Scale levels				
	Very Poor (%)	Poor (%)	Moderate (%)	Good (%)	Very Good (%)
Operating Systems	4	12	26	39	19
Hardware	5	20	34	29	12

In the category of office applications, most of the students rated themselves better at Word Processing than in the other Office Applications. Database was the most common Office Application for which the students rated themselves as poor. Overall, 36% of the students rated themselves as good at Word Processing, 31% said they had moderate skills with Spreadsheet, 28% said they had moderate skills with Presentation, and 36% said their skills were poor for Database (Table 8).

Table 8. *Students' level of computer-use skills –* ***Office Applications***

	Scale levels				
	Very Poor (%)	Poor (%)	Moderate (%)	Good(%)	Very Good(%)
Word Processing	4	11	27	36	22
Spreadsheet	6	20	31	30	13
Presentation	10	21	28	27	15
Database	30	36	19	11	4

Compared with Office Applications, most of the students considered themselves better at using the Internet Applications, with the exception of Web-Page Development. Regarding the Internet, 42% of the students rated themselves very good at e-mail, 36% said they were very good at using search engines, 33% said they were good at using Internet Browsers, 24% reported being good at chat, and 35% admitted that they had very poor skills in Web-Page Development.

Table 9. *Students' level of compute- use skills – **Internet Applications***

	Scale levels				
	Very Poor (%)	Poor (%)	Moderate (%)	Good (%)	Very Good (%)
e-mail	3	6	14	35	42
Search Engines	6	9	16	33	36
Internet Browser	2	16	17	33	32
Chat	17	18	21	24	20
Web-Page Dev.	35	32	17	10	6

Studying styles of the students

There is a positive correlation between self-regulation and achievement in online environments (Ergul, 2004). In addition, online self-regulated learners are generally characterized as active participants who efficiently control their own learning experiences in many different ways, including establishing a productive work environment and using resources effectively (Artino, 2008, p.39). Therefore, this study examined the students' studying habits. The students were asked to rate themselves in terms of their ability to complete their course responsibilities on time. The issues investigated were: fulfilling responsibilities before due dates; whether or not reminders were needed for them to complete requirements on time; their required study time for a traditional course compared to a web-based-distance education course; and lastly, their reading ability.

According to the responses, 46% of the students reported that they fulfill their responsibilities before the due dates, 39% usually left their responsibilities to the last minute, and 15% needed to be reminded in order to fulfill their responsibilities on time.

Students were also asked to state whether they needed to be reminded about the due date of their homework by their lecturers. On this question, 55% of the students stated that they rarely needed to be reminded by the lecturer, 35% reported that they sometimes needed to be reminded, and 10% stated that they usually needed to be reminded to do their homework on time.

The students were asked to compare their self-study time for any traditional course and web-based distance education course. On this question, 43% of the students stated that their study time for a course given on the Internet was less than for a traditional course, 28% stated that the amount of time was the same for both types of course, and 28% stated that their required study time for a course given on the Internet is more than for a traditional course.

The students were asked to describe their reading ability. On this question, 73% of the students stated that they were good readers, and that they did not need help from others to understand materials; 23% stated that they were moderately skilled readers and that they sometimes needed help from others; and 4% stated that they were poor readers, and that they often needed help from others to understand materials.

To sum up, this study shows that the students are ready for distance education programs in terms of their capabilities. Most of the students said that they did not need any help understanding a reading. Further, the results of the study show that university students are mostly self-regulated.

Thoughts concerning web-based distance education

This study examined the following issues to determine the students' thoughts concerning with web-based distance education programs: 1) students' desires for seeking a second diploma or certificate during undergraduate education or after graduation, and 2) the learning environment preference (online, traditional, or blended).

The students were asked to express whether or not they wish to seek a second diploma or certificate by attending an undergraduate minor program during their undergraduate education. While 65% said yes, 18% said no, and 17% of the students stated that they were undecided. Moreover, the students were asked whether or not they wish to seek a second diploma, masters of science degree, or certificate after graduation. On this question, 66% of the students said yes, 13% said no, and 21% said that they were undecided. The Sloan Consortium survey revealed that over 80% of online students are studying at the undergraduate level (Allen & Seaman, 2008). That is, although the students are willing to seek a second diploma after graduation, most of them prefer online undergraduate education.

The students were asked to state whether or not they could go to a campus for examinations and laboratory work in the event that they attend a program after graduation. On this question, 49% said that they could go to a

campus at anytime, 26% stated that they could participate in examinations and laboratory work if the campus or laboratory was open during weekends or nights, and 25% said that they would have difficulty coming to a campus even on weekends or at night.

The students were asked to state the type of learning environment they prefer when attending any graduate program. On this question, 56% said that they prefer blended programs, 32% prefer traditional programs, and 12% prefer online programs. Thus, the majority of students prefer a mixture of conventional and online methods (blended) for additional education after their graduation. This finding agrees with an earlier study which also concluded that Turkish University students do not want to solely attend pure online education programs (Kocak & Kalender, 2002). Together, these studies indicate that potential distance education students prefer blended learning programs.

CONCLUSIONS

Most of the studies in the field of web-based education focus on comparison of conventional education and online education (Artino, 2008). However, learner characteristics and expectations directly affect the success of distance education programs. The best learner-learner, learner-content, learner-teacher interactions are accomplished if educators know their learners closer. Therefore, this study revealed university students' Internet and computer use opportunities, their level of computer use, studying styles and their thoughts about e-learning, and compared the results of the study with the literature. Moreover, in the past, studies on Turkish university students and their online education preferences provided limited knowledge because they had small sample sizes or the sample of the studies were very specific student groups. However, this study has high numbers of undergraduate students from four major universities in Turkey. So, this study presents need analysis knowledge, which is the first step of design, to educators or to designers before they develop a distance education program.

Latchem et al. (2009) concluded that distance learners' competence with ICT, access to broadband or dial-up, age, and gender, influence their attitudes towards distance learning. The results of this study showed that distance education planners have positive signs to offer new programs for Turkish university students. First, this study revealed that the majority of the university students did not have personal home computers with an Internet access. Indeed, lack of learners' technology ownership is the major obstacle in any planned initiation of a web-based distance program. However, the trend shows that this rate has increased fast in Turkey (Turkstat, 2005, 2009). Second, learners in distance education programs should use technology effectively in order to learn course content which is delivered by technology instead of teachers. The results of this study showed that Turkish students have basic ICT literacy skills to follow web based distance courses. Third, the students in the study did express a strong desire to take web-based distance courses. Experiences showed that learners should feel a need to participate to a new learning environment before they actively involved in the program. On the contrary, distance education programs will not be successful.

Finally, the results provide a more complete picture of the self-expressed profiles and desires of Turkish university students. Based on this data, policy members can initiate new, large-scale web-based distance education programs in Turkey. As a focus for future studies, we suggest that researchers should repeat this study using the same format, as student profiles will continue to change along with the development of new technologies and socio-economical improvements in Turkey.

REFERENCES

Agaoglu, E., Imer, G. & Kurubacak, G. (2002). A case study of organizing distance education: Anadolu University. *The Turkish Online Journal of Distance Education, 3*(1). Retrieved May 20, 2006, from http://tojde.anadolu.edu.tr/tojde5/pdf/4.pdf.

Alkan, C. (1987). Açıköğretim: uzaktan eğitim sistemlerinin karsılaştırılmalı olarak incelenmesi [Openeducation: an investigation of distance education systems]. Ankara Üniversitesi Eğitim Bilimleri Fakültesi Yayınları, Ankara.

Allen, I. E. & Seaman, J. (2008). *Staying the Course: Online Education in the United States, 2008*. Retrieved Novamber 5, 2009, from http://www.sloanconsortium.org/publications/survey/pdf/staying_the_course.pdf.

Artino, A., Jr. (2008). Promoting Academic Motivation and Self-Regulation: Practical Guidelines for Online Instructors. *TechTrends, 52*(3), 37-45.

Asgun, S. et al. (2007). *Egitimin değisen yüzü: E-öğrenme* [E-learning: a new face of education], Ankara, ODTU Mezunlar Derneği.

Atav, E., Akkoyunlu, B. & Saglam, N (2006). Ögretmen adaylarının İnternete erişim olanakları ve kullanım amaçları [Prospective Teachers' Internet Access Facilities and Their Internet Usage]. *Hacettepe Eğitim Dergisi, 30,* pp.37-44.

Daniel, J. S. (1996). *Mega Universities and knowledge media: Technology strategies for higher education*. Sterling, VA: Stylus Publishing.
Demiray, U. (ed.) (2002). A review of the literature on the open education faculty in Turkey (4th ed.). Eskisehir. Retrieved March 2, 2006, from http://www.tojet.net/books.htm.
Demiray, U. (2005). Trends and issues in the development of distance education in Turkey. In Y. L. Visser (Ed.). *Trends and issues in distance education: International perspectives*, (pp. 163-170). Greenwich, Information Age Publishing.
Egitek (2006). *Eğitim teknolojileri genel müdürlüğü: Tarihçesi.* Retrieved August 10, 2006, from http://egitek.meb.gov.tr/Egitek/tanitim.html.
Ergul, H. (2004). Relationship between student characteristics and academic achievement in distance education and application on students of Anadolu Universtiy. *Turkish Online Journal of Distance Education 5*(2), pp.80-89. Retrieved February 8, 2006, from http://tojde.anadolu.edu.tr/tojde21/left.htm.
Gunawardena, C. N. (2003). Distance Education. Ch 14 in David H. Jonassen (Ed.). *Handbook of Research for Educational Communications and Technology***.** NewYork: Macmillan. pp. 355-395.
Karahan, M. & Izci, E. (2001). Üniversite öğrencilerinin internet kullanım düzeyleri ve beklentilerinin değerlendirilmesi [The Internet use level of university students and evaluation of their expectations], *Milli Egitim Dergisi*, 150. Retrieved February 24, 2006, from http://yayim.meb.gov.tr/dergiler/150/karahan_izci.htm.
Karim, N. S. A. L, Zamzuri, N. H. A. & Nor, Y, M, (2009). Exploring the relationship between Internet ethics in university students and the big five model of personality, *Computers & Education, 53,* pp.86 -93.
Knupfer, N. & Mclellan, H. (1996). Descriptive research methodologies. In D. Jonassen (Ed.), *Handbook of research for educational communications and technology*. NY: Macmillan.
Kocak, A. & Kalender, A. (2002). Distance education within a campus: Case of Selcuk University. *Turkish Online Journal of Distance Education, 3* (3). Retrieved February 8, 2006, from http://tojde.anadolu.edu.tr/tojde7/articles/selcukuniversity.htm.
Latchem, C., Simsek, N., Cakir Balta, O., Torkul, O., Cedimoglu, I. H. & Altunkopru, A. (2009). Are We There Yet? A Progress Report from Three Turkish University Pioneers in Distance Education and E-Learning. *The International Review of Research in Open and Distance Learning, 10* (2).
Molenda, M. & Bichelmeyer, B. (2006). Issues and trends in instructional technology: Slow growth as economy recovers. *Educational Media and Technology Yearbook*. Westport, CT: Libraries Unlimited.
Molenda, M. & Sullivan, M. (2002). Issues and trends in instructional technology: Hitting the plateau. In M. A. Fitzgerald, M. Orey, & R. M. Branch (Eds.), *Educational media and technology yearbook 2002* (Vol. 27, pp. 3–18). Englewood, CO: Libraries Unlimited.
OECD (2009). OECD Key ICT Indicators. Retrieved October 29, 2009, from http://www.oecd.org/dataoecd/19/45/34083073.xls.
Picciano, A. G. (2001). *Distance Learning: Making Connection Across Virtual Space and Time*. Prentice Hall, Inc. Upper Saddle River, NJ.
Simonson, M., Smaldino, S., Albright, M. & Zvacek, S. (2009). *Teaching and learning at a distance: Foundations of distance education* (4th ed.). Ally & Bacon. Pearson.
Tahiroglu, A. Y., Celik, G. G., Uzel, M., Ozcan, N. & Avci, A. (2008). Internet use among Turkish adolescents, *Cyberpsychology & Behavior, 11*(5), pp.537-543.
The Council of Higher Education (2004). *Student Statistics*. Retrieved February 8, 2006, from http://www.yok.gov.tr/hakkinda/2003-2004os.xls.
Tubitak (2004). *National science and technology politics: 2003-2023 strategy document*. Retrieved January 29, 2005, from http://vizyon2023.tubitak.gov.tr/strateji_belgesi-v211.Pdf.
TurkStat (2004). *ICT use in households*. Retrieved February 8, 2006, from http://www.tuik.gov.tr.
TurkStat (2005). *ICT use in households*. Retrieved July 27, 2006, from http://www.tuik.gov.tr.
TurkStat (2009). *ICT use in households*. Retrieved October 27, 2009, from http://www.tuik.gov.tr.
Yalabık, N. (2004). E-campus project. *Distance education workshop*, Mersin University, Turkey.

