The analysis of experimental and descriptive studies on the effectiveness of distance learning in Turkey

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Abstract

Distance learning applications have increased in Turkey in recent years. From primary school level to graduate level, distance learning applications with varying methods and time spans are observed. Studies that compare the effectiveness of distance learning with traditional schools can be found in the literature. The purpose of the current study is to systematically examine studies that evaluated distance learning in regard to certain variables. Hence, master's and doctoral theses as well as studies published in refereed journals have been documented and analyzed. The first study was reached on September 29, 2016; and the last study was reached on December 1, 2016. Among the 200 studies on distance learning that were conducted between 2000 and 2016, 35 were selected based on the criteria developed by researchers. A descriptive, document analysis method was used in breaking down the studies.Based on the findings of the experimental studies, it was concluded that there was no significant difference between the effectieness of traditional schools and distance learning. Based on the findings of the descriptive studies, teachers and students reported both positive and negative views on various issues regarding distance learning. Among the positive views, the most frequently reported one was that distance learning improves academic achievement, motivation and attitudes. The most frequently reported negative view was the weakness of teacher-student dialogues and academic guidance due to the lack of face to face conversations. The findings were discussed in detail. These findings could shed light on lifelong learning applications in formal, informal and adult education in Turkey.

Keywords: Lifelong learning, distance learning, mixed-gender education, adult learning.

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1. Introduction

The vast knowledge base in today's world demands continuous learning and improvement (Budak, 2009; Atici & Polat, 2010). With the desire of improving their knowledge and skills, individuals need ongoing learning opportunities at any stage of their lives (Coskun & Demirel, 2012). The European Union defines lifelong learning as educational experiences at any stage of people's lives in order to gain desired knowledge, skills and competencies (Turan, 2005). Similarly, the Turkish Ministry of National Education (2009) describes lifelong learning as the voluntary pursuit of knowledge that continues through life, with the focus of personal or professional development. Moreover, according to the related literature, lifelong learning involves all kinds of learning contexts (Coskun & Demirel, 2012) and that begins with the first learning experience and lasts until one's death (Ozciftci & Cakir, 2015). Formal education is often considered as the preliminary stage of lifelong learning (Budak, 2009).

In order to meet the demands of growing information systems, the integration of technology in education is becoming more common (Yalman, 2013). Research shows technology based instruction plays an important role in enhancing student achievement and motivation (Berberoglu, 2010). Animations, games and electronic learning modules are being used frequently in traditional classrooms (Cakiroglu, Cebi & Akkan, 2009). Erduran and Tataroglu (2009) state that the use of computers, smart boards, beamers, etc. in classrooms supports and facilitates learning for both teachers and students.

The information age that we live in today requires lifelong learning (Akcay & Gokcearslan, 2016). This requirement can only be met by using communication technologies (Gokdas & Kayri, 2005). In formal education, there are time and place constraints for using technology; however, in lifelong learning, these constraints are released (Can, 2004). One of the technology based learning models that liberates learners from time and place constraints is distance learning (Turan, 2005). Distance learning is a model in which students are not required to be physically present at a school and that the courses offer open access through the World Wide Web or other network technologies and provide audio-visual materials and electronic documents (Isman, 2011). A multitude of developments in information technologies entails new and effective learning methods and systems in distance learning.

Distance learning applications have increased in Turkey in recent years. From primary school level to graduate level, distance learning applications with varying methods and time frames are observed. There is also an increase in the number of studies that examine the development, effectiveness, strengths and weaknesses of distance learning. Despite the growing number of studies on the topic, there is scarce understanding on the kinds of studies that have been conducted on distance learning, their methods, and results. Understanding whether distance learning is effective is both a theoretical and practical issue. Remarkable investments have been made into distance learning in Turkey recently. Evaluating empirical research on this topic would give ideas on investment worth. This paper contributes to the understanding of distance learning in Turkey by reviewing the existing body of empirical research on the topic.

The literature review on the topic showed that there is only one study that reviewed previous research on distance learning in Turkey. Horzum and colleagues (2013) examined the research topics, methods and the limitations of distance learning research in Turkey. However, they did not focus on the research results. The current study aims to fill this gap through a detailed analysis of descriptive and experimental studies' results and to make some generalizations. Study findings will contribute to the literature theoretically as well as practically. They will guide the direction of future research on distance learning.

2. Method

A descriptive, document analysis method was used in breaking down the studies. Document analysis involves the review and evaluation of printed and electronic documents on targeted concept or case (Yildirim & Simsek, 2016).

Descriptive and experimental studies on distance learning conducted in Turkey were compiled. The first study was reached on September 29, 2016; and the last study was reached on December 1, 2016. Among the 200 studies on distance learning that were conducted between 2000 and 2016, 34 were selected based on the following criteria:

1.   Experimental studies that tested the effectiveness of distance learning and descriptive studies that examined the advantages and disadvantages of distance learning in Turkey since the year 2000 were included in the analyses.

2.   Experimental studies included the ones that compared the effectiveness of distance learning with face-to-face or blended learning in separate groups. Single group experimental studies and studies that compared different modes of distance learning were not included in the analysis.

3.   Descriptive studies included the ones that examined the instructors' and students' views on distance learning.

4.   Articles that were published in national and international journals, masters' and doctoral theses that were available from the National Theses Center and studies that were published in conference proceedings were included in the analyses.

3. Research Questions

A total of 34 studies (see Appendix) were analyzed. The three research questions that guided the analyses were,

1.   What is the distribution of studies based on publication type, study design, data collection instrument, and sample?

2.   What are the general results of the experimental studies that compared the effectiveness of distance learning with face-to-face learning and blended learning?

3.   What are the general results of the descriptive studies that examined the instructors' and students' views on distance learning?

4. Data Coding

Before the data coding, the electronic versions of all studies were compiled. Next, all the information about studies was entered into an excel file along with their hyperlinks. Thus, easy access to studies was provided. When entering the study information, categories that were determined by each research question (study design, sample, etc.) were entered in separate cells. Each study was coded based on these categories.

The experimental studies were coded based on the treatment type. These types included distance learning, face-to-face learning, and blended learning. The descriptive studies were coded under two separate categories: 1. Instructors' view and 2. Students' views on distance learning. The codes for descriptive studies were further divided as positive views and negative views. For the reliability, data coding was repeated by the second researcher after having been coded by the first researcher. Then, the inconsistencies were resolved through discussion among the three researchers.

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5. Data Analysis

Categories for each research question were determined descriptively, through frequencies (f) and percentages (%). The results for each research question were presented in tables.

6. Findings

The findings of each research question were reported separately.

1. The distribution of studies based on publication type, study design, data collection instrument, and sample:

Table 1. Distribution of studies based on various variables

Publication Type	f	%
Journal Article	26	76.4
Conference Paper	4	11.7
Master's Thesis	3	8.8
Doctoral Dissertation	1	2.9
Study Design		
Descriptive	21	62
Experimental	13	38
Data Collection Instrument		
Survey	18	52.9
Achievement Test	11	32.3
Motivation/Attitude Scale	5	14.7
Sample		
Student	22	64.7
Instructor	12	35.2

According to Table 1, among the 34 studies examined, 26 of them were journal articles (%76.4), 4 were conference papers (%11.7), 3 were masters' thesis (%8.8), and 1 of them was a doctoral dissertation, (%2.9). In 13 studies (%38) the experimental design was used, and in 21 studies (%62) descriptive design was used. Based on data collection instrument, in 18 studies (%52.9) surveys were used, in 11 studies (%32.3) achievement tests were used and in 5 studies (%14.7) motivation/attitude scales were used. Finally, in terms of the study sample, 22 studies (%64.7) included students and 12 studies (%35.2) included instructors.

2. The general results of the experimental studies that compared the effectiveness of distance learning with face-to-face learning and blended learning:

Table 2. Findings of the Experimental Studies

Dependent Variable	Finding	f
Academic Achievement	Distance Learning > Face-to-Face Learning	3
	Distance Learning = Face-to-Face Learning	4

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Motivation / Attitude	Blended Learning > Face-to-Face Learning > Distance Learning	1
	Blended Learning > Distance Learning	1
	Distance Learning > Face-to-Face Learning	3
	Distance Learning = Face-to-Face Learning	1
	Total	13

According to Table 2, out of 13 experimental studies, 9 of them used academic achievement and 4 of them used motivation/attitude scale as the dependent variable. Most of the studies compared distance learning either with face-to-face learning or blended learning. Only one study included all three types of learning (distance learning, face-to-face learning, and blended learning). Among the studies that compared the academic outcomes of distance learning with face-to-face learning, 3 of them found distance learning to be more effective and 4 studies found no significant differences between the two types of learning. In one study that examined the effectiveness of all three types of learning, it was found that blended learning was more effective than both distance and face-to-face learning. In the same study, it was reported that in face-to-face learning, students had significantly higher academic achievement compared to distance learning. Similarly, the only one study that compared distance learning with blended learning reported significant differences in academic achievement in favor of blended learning. In terms of motivation/attitude as the dependent variable, 3 studies favored distance learning and 1 study could not find a significant difference between distance and face-to-face learning.

3. The general results of the descriptive studies that examined the instructors' and students' views on distance learning:

The findings of the descriptive studies were presented as the positive views (see Table 3) and the negative views (see Table 4) of instructors and students.

Table 3. Instructors' and students' positive views on distance learning

Theme	Finding	f (Instructor Views)	f (Student Views)	f Total
Reaching Target Population	Reaches a wide range of the population.	4	-	4
	Provides equal opportunity in education.	4	-	4
	Improves IT skills.	2	-	2
Effective Learning Outcomes	Supports meaningful learning.	2	1	3
	Provides professional development opportunities.	2	-	2
	Provides personal development opportunities.	3	-	3

Theme	Finding			
	Self-paced learning increases motivation.	3	1	4
Freedom of Time and Place	Liberates user from time and place constraints thus, provides flexibility.	7	2	9
	Improves individual learning skills.	3	-	3
Effective Teaching-Learning Process	Reduces distractions and focuses attention.	3	1	4
	The review of lessons and practice tests help users master learning.	6	3	9
	Provides multisensory and concrete learning experiences	2	2	4

Based on the general themes in Table 3, distance learning has some benefits such as, reaching target population, providing effective learning outcomes, freedom of time and place and effective teaching-learning processes. The most frequently reported benefit of distance learning was that "It liberates users from time and place constraints thus, provides flexibility". Another frequently appeared benefit was that "The review of lessons and practice tests help users master learning". In terms of the teaching and learning process, it was noted that distance learning improves individual learning skills, reduces distractions and focuses attention, provides multisensory and concrete learning experiences. Another general theme of analysis was reaching the target population. It was denoted that distance learning provides equal opportunity in education and reaches a wide range of the population. Regarding effective learning outcomes, instructors and students reported that distance learning improves Information Technologies (IT) skills, supports meaningful learning, provides professional and personal development opportunities and increases learning motivation.

Table 4. Instructors' and students' negative views on distance learning

Theme	Finding	f (Instructor Views)	f (Student Views)	f Total
Ineffective Learning Outcomes	Incomplete comprehension due to inadequate monitoring.	1	-	1
	The visual materials are inadequate.	-	1	1
	Course content (especially quantitative courses) are too abstract to understand.	-	4	4
	Mentoring is insufficient.	4	-	4
Ineffective Teaching-Learning Process	Courses are demanding too much time and effort from instructors.	-	1	1
	Some of the course content is limiting students' thinking.	2	-	2
	Lack of active participation and classroom management issues due to a large number of	1	2	3

	students.			
Measurement and Evaluation Issues	Absence of feedback on homeworks and process assessment causes issues with measurement and evaluation.	2	-	2
Lack of Communication	Issues with effective learning due to lack of face-to-face interaction.	5	3	8
	Issues with listening and questioning skills.	3	3	6
	Issues with information sharing.	1	1	2
	Issues with socialization and attending extracurricular activities.	3	1	4
Technical Difficulties	Unequal access to computers and the internet decreases the efficiency of distance learning.	2	1	3
	When correct technologies are not chosen distance learning can be a costly investment.	1	-	1

Based on the general themes in Table 4, the disadvantages of distance learning can be listed as ineffective teaching and learning process, measurement and evaluation issues, lack of communication and technical difficulties. The most frequently repeated disadvantage was the lack of communication. Under this theme, the participants reported that the lack of face-to-face interaction hinders effective learning, listening and questioning skills, social interaction, information sharing, and attending extracurricular activities.

In terms of ineffective teaching and learning process, it was listed that the visual materials were inadequate, course content especially that of quantitative courses were too abstract to understand, mentoring by instructors was insufficient, courses were demanding too much time and effort of instructors and some of the course content was limiting students' thinking. Furthermore, there were classroom management issues occasionally, since there are too many students taking the common courses.

As for ineffective learning outcomes, one study reported that due to the lack of mentoring by instructors students cannot receive feedback thus, comprehension of some concepts can be incomplete. Similarly, the absence of feedback on homework and process assessment causes issues with measurement and evaluation. Finally, another disadvantageous area of distance learning was technical difficulties. Participants noted that unequal access to computers and the internet reduces the efficiency of distance learning and, when correct technologies are not chosen distance learning can be a costly investment.

7. Discussion and Conclusion

This study systematically examined experimental and descriptive studies that evaluated distance learning implementations in Turkey. Master's and doctoral theses, as well as studies published in refereed journals and conference proceedings since the year 2000 have been documented and analyzed. The findings are inconclusive regarding which one is the most effective learning model among face-to-face, distance, and blended learning. There are experimental studies that show distance learning is statistically superior to face-to-face learning in terms of student achievement and motivation. However, there are an almost equal number of studies that could not find any significant differences between the two models. The limited research that examined blended learning points out

that this model could be more effective than both distance learning and face-to-face learning. Nevertheless, more studies need to be conducted on this topic in order to reach conclusions.

The related literature states that web-based learning increases learning motivation and academic achievement (Yaylak, 2010) and provides easy access to learning materials and allows review of topics whenever needed (Aktas & Eskikurt, 2009). However, investment in educational technologies without adequate research may cause disappointments. Therefore, strengths and weaknesses of web-based learning need to be analyzed thoroughly before implementation (Baltaci & Akpinar, 2011).

As a result of an experimental study, Unalan (2016) suggested that missing some of the crucial elements of face-to-face learning such as instructor-student and student-student interactions might result in poor performance of students. This suggestion was supported by many of the descriptive studies analyzed here (Cetin, Caliskan & Menzi, 2013; Taslibeyaz, Karaman & Goktas, 2014; Gozutok, Gulbahar & Kose, 2007; Gurer, Tekinarslan & Yavuzalp, 2016). In another experimental study, Ozturan and colleagues (2000) reported that even though distance learning may not significantly increase student performance, it gives learners freedom of time and place and provides self-paced learning. This was one of the general findings of the descriptive research examined in the current study. These findings show that experimental studies often support the findings of descriptive research. Therefore, some generalizations can be made about distance learning. It can be generalized that distance learning is not superior to face-to-face learning in terms of academic achievement; however, it has some definite advantages such as self-control over learning and freedom of time and place. On the other hand, it has some weaknesses such as lack of interaction and monitoring student work.

When interpreting the findings of descriptive studies, it is important to note that they were the reports of participants who experienced distance learning from first hand. Participants denoted both strengths and weaknesses of distance learning. Accordingly, the most pronounced strength of distance learning is that it liberates learners from time and place constraints, it gives learners the chance to review and practice subject matter and it provides concrete examples. Moreover, reaching target population, providing personal and professional development opportunities and gaining IT skills are some of the other advantages.

Regarding the weaknesses of distance learning, the lack of social interaction is a commonly reported one. Other weaknesses are the abstraction of course content, especially in quantitative courses, absence of feedback on homework, incomplete learning, technical difficulties and instructors' burden in preparing the course materials. To conclude, every educational implementation has its strengths and weaknesses. Before planning and investing for an implementation such as distance learning, it would be wise to consider the findings of research in this field in order to increase efficiency and productivity of learning and instruction.

References

Akcay, S. & Gokcearslan, A. (2016). Es zamanli sanal sinif ortaminin grafik tasarim dersinde kullanimina yonelik bir uygulama ve ogrenci algilari: Gazi Universitesi ornegi. *Kastamonu Egitim Dergisi, 24*(4), 1983-2004.

Aktas, T. & Eskikurt, H. I. (2009). *Yaygin egitimde bilgisayar egitimi programlarinin uzaktan destekleyici egitimle verilmesine dair ornek uygulama.* In 9th International Conference on Educational Technologies, Ankara, (pp. 05-11).

Atici, B. & Polat, H. (2010). Web tasarimi ogretiminde proje tabanli ogrenme yaklasiminin ogrencilerin akademik basarisi ve goruslerine etkisi. *Turkish Journal of Computer and Mathematics Education, 1*(2), 122-132.

Baltaci, M. & Akpinar, B. (2011). Web tabanli ogretimin ogrencilerin akademik basarisina etkisi. *Firat Universitesi Sosyal Bilimler Dergisi, 21*(1), 77-88.

Berberoglu, B. (2010). Yasam boyu ogrenme ile bilgi ve iletisim teknolojilerin acisindan Turkiye'nin Avrupa Birligi'ndeki konumu. *Bilgi Ekonomisi ve Yonetimi Dergisi, 5*(2), 113-126.

Atay, B., Akkaya, A., Kablan, Z. & Kaya, S. (2017). The analysis of experimental and descriptive studies on the effectiveness of distance learning in Turkey. *New Trends and Issues Proceedings on Humanities and Social Sciences.* [Online]. 4(4), pp 26-34. Available from: www.prosoc.eu

Budak, Y. (2009). Yasam boyu ogrenme ve ilkogretim programlarinin hedeflemesi gereken insan tipi. *Gazi Universitesi Gazi Egitim Fakultesi Dergisi, 29*(3), 693-708.

Can, E. (2004). *Uzaktan egitim ogrencilerinin egitimlerini degerlendirmeleri.* In 18th National Educational Sciences Congress, Inonu University , Malatya, (pp. 1-15).

Cakiroglu, U., Cebi, A. & Akkan, Y. (2009). *Bilgisayar oyunlarinin egitim amacli kullanimina yonelik ogretmen gorusleri*. In 9th International Conference on Educational Technologies, Hacettepe University, Ankara, (pp. 14-21).

Cetin, O., Caliskan, E. & Menzi, N. (2013). Web tabanli ogretime yonelik akademisyen gorusleri. *Ilkogretim Online, 12*(3), 886-902.

Coskun, D. Y. & Demirel, M. (2012). Universite ogrencilerinin yasam boyu ogrenme egilimleri. *Hacettepe Universitesi Egitim Fakultesi Dergisi, 42*, 108-120.

Erduran, A. & Tataroglu, B. (2009). *Egitimde akilli tahta kullanimina iliskin fen ve matematik ogretmen goruslerinin karsilastirilmasi.* In 9th International Conference on Educational Technologies, Ankara, (pp.6-13).

Gokdas, I. & Kayri, M. (2005). E-ogrenme ve Turkiye acisindan sorunlar ve cozum onerileri. *Yuzuncu Yil Universitesi Egitim Fakultesi Dergisi, 2*(2), 1-20.

Gozutok, F. D., Gulbahar, Y. & Kose, F. (2007). E-ogrenme yontemi ile ogretmenlerin insan haklari egitimi. *Ankara Universitesi Egitim Bilimleri Fakultesi Dergisi, 40*(1), 135-156.

Gurer, M., Tekinarslan, E. & Yavuzalp, N. (2016). Cevrimici ders veren ogretim elemanlarinin uzaktan egitim hakkindaki gorusleri. *Turkish Online Journal of Qualitative Inquiry, 7*(1), 47-78.

Horzum, M. B., Ozkaya, M., Demirci, M. & Alpaslan, M. (2013). Turkçe uzaktan egitim arastirmalarinin incelenmesi. *Inonu Universitesi Egitim Fakultesi Dergisi, 14*(2), 1-22.

Isman, A. (2011). *Uzaktan egitim*. Ankara: Pegem Akademi.

MEB. (2009). *Hayat boyu ogrenme strateji belgesi.* Retrieved from http://www.mesbil.meb.gov.tr/hayat%20boyu%20ogrenme%20dokuman.pdf on 5 January 2017.

Ozciftci, M. & Cakir, R. (2015). Ogretmenlerin yasam boyu ogrenme egilimleri ve egitim teknolojisi standartlari oz yeterliklerinin incelenmesi. *Egitim Teknolojisi Kuram ve Uygulama, 5*(1), 1-19.

Ozturan, M., Egeli, B. & Darcan, O. (2000). Turk universitelerinde bilgisayar aglarinin uzaktan egitim araci olarak kullanilmasina iliskin bir arastirma. *Hacettepe Universitesi Egitim Fakultesi Dergisi, 18*, 108-113.

Taslibeyaz, E., Karaman, S. & Goktas, Y. (2014). Ogretmenlerin uzaktan hizmet içi egitim deneyimlerinin incelenmesi. *Ege Egitim Dergisi, 15*(1), 139-160.

Turan, S. (2005). Ogrenen toplumlara dogru Avrupa Birligi egitim politikalarinda yasam boyu ogrenme. *Ankara Avrupa Calismalari Dergisi, 5*(1), 87–98.

Unalan, H. T. (2016). Egitim Fakultesi Guzel Sanatlar Egitimi bolumlerinde internet destekli ogrenme ortamlarinin olusturulmasi. *Acikogretim Uygulamalari ve Arastırmalari Dergisi, 2*(1), 130-147.

Yalman, M. (2013). Egitim fakultesi ogrencilerinin bilgisayar destekli uzaktan egitim sistemi (moodle) memnuniyet duzeyleri. *Electronic Journal of Turkish Studies, 8*(8), 1395-1406.

Yaylak, E. (2010). *Ilkogretim sosyal bilgiler ogretiminde internet tabanli ogretim yonteminin ders basarisina etkisi* (Unpublished master thesis). Dokuz Eylul University, Izmir.

Yildirim, A. & Simsek, H. (2008). *Sosyal bilimlerde nitel arastırma yontemleri* (6th edition). Ankara: Seckin Yayincilik.