



Methodological Trends of the Distance Education Theses Published in Turkey from 2005 to 2014: A Content Analysis

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Abstract

Distance education is an important research subject in Turkey like it is in the world, and there are many master's and doctoral theses exist that deal with distance education. The aim of this study is to reveal current research trends in distance education theses published in Turkey between 2005 and 2014. In this direction, 380 theses that are open to access on the Council of Higher Education (CoHE) national theses database were reviewed. The theses were entered by using "Distance Education Theses Examination Form" (DETEF) which contains thesis type, thesis subject, publication year, university, institute, department, research method, research design, sampling method, sample population, data collecting tool and data analysis. The method sections of the theses were analyzed with descriptive content analysis. The results indicated that while the number of theses in the field of distance education were on the rise until 2010, the number of thesis started to decrease within following years. In addition, it was determined that institutes employ different research methodologies. Another result is that the most used research design is survey in quantitative methodology theses, case studies in qualitative and mixed methodology theses. It was determined that the sampling method is not expressed in most of the theses based on the quantitative methodology. On the other hand, purposeful sampling is most used in theses based on the qualitative methodology. The most commonly studied sample population were undergraduate students and adults for all methodologies. With regard to the data collecting tools used in the distance education theses, surveys and scales are mostly used in the quantitative methodology while the interview method is

Keywords

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mostly used in the theses based on the qualitative methodology. Besides, it was determined that basic statistical techniques were used in distance education theses. From this results, in order to conduct more scientific and qualified studies related to distance education, all research methodologies, which are not adequately and effectively used as the findings show, should be encouraged.

Introduction

Great changes took place in the field of education due to scientific and social changes, and these changes continue to occur in this way. Distance education applications have improved along with the quick changes in especially information and communication technologies and have kept pace with these developments. The first distance learning took place in England in 1840 by Isaac Pitman who taught by sending letters (Simonson, Smaldino, Albright, & Zvacek, 2006). Ankara University set the first example of distance education when they sent educational letters to bank personnel (MEB, 1982). The distance education applications which started with sending letters to the learners, continues its development in different aspects in the modern day, especially with the support of improving web technologies.

Nowadays, web-based learning systems have become the most fundamental element in the practice of distance education. Interaction and collaboration became prominent in distance education thanks to the developments in web technologies and the importance of online learning has gained attention (Benson & Samarawickrema, 2009). Along with this, popularization and effectiveness of web-based distance education have paved the way for the studies comparing web-based distance education with face-to-face education. Especially the idea that through the development of technology, distance education offers learning opportunities as much as face-to-face learning, has made the success and experience of distance education a common subject for studies. As a result of these developments, the anchor point of the studies conducted in the field of distance education has been comparative studies. Saba (2000), who reveals the situation of the distance education in his study, proclaimed that studies, comparing the classroom environment of face-to-face education and environment of distance education, have been existed since 1950.

The distance education and face-to-face education environments have been compared through certain variables in comparative studies. The main purpose of these comparisons is to exhibit whether distance education is as effective as face-to-face education (Aydın, 2001; Demir-Kaymak & Horzum, 2013; Gaytan, 2007; Horzum, 2007, 2011; Horzum, Özkaya, Demirci, & Alpaslan, 2013; Moore & Kearsley, 1996; Şimşek, 2002). Bernard et al. (2004) concluded in their research, which examines the studies of meta-analysis and document analysis comparing distance education systems and face-to-face education, have come to result that level of learning achievement in distance education is higher than face-to-face education.

Beside the comparative studies, the examination of research studies on distance education in terms of methodological tendencies will be useful to reveal another aspect of distance education. Davies, Howell, and Petrie (2010) put forward the absence of studies that tries to establish theoretical framework. Simonson et al. (2006) point to importance of theories and state that theories have direct effects on distance education applications. Methodological investigation of distance education researches will help establish field-specific theoretical bases, produce policies and develop applications, therefore enhancing the quality and functionality distance education systems. In this regard recent years, it was found that the studies of distance education were analyzed depending on the research methodology. While some of these studies were focused directly on distance education studies (Berge ve Mrozowski, 2001; Bozkurt et al., 2015; Davies et al., 2010; Horzum et al., 2013; Salar, 2009; Şahin, 2005; Zawacki-Richter, Bäcker, & Vogt, 2009), some others were interested in educational technology (Şimşek et al., 2008; Şimşek et al., 2009; Kılıç-Çakmak et al., 2015; Küçük, Aydemir, Yıldırım, Arpacık, & Göktaş, 2013) and on education (Göktaş et al., 2012; Karadağ, 2009; Selçuk, Palancı, Kandemir, & Dündar, 2104).

In international literature, Berge and Mrozowski (2001) in order to analyze the literature of distance education studies, have examined 890 articles and theses abstracts that are in English between 1990 and 1999. One of the results they have found is that most of the studies were descriptive while experimental correlational studies were rare. Lee, Driscoll and Nelson (2004) have examined 383 studies published between the years 1997-2002 in 4 journals about distance education, with regards to their research subjects, methods and citation tendencies. They also categorized studies according to research methods in which 36% were case studies, 20% were theoretical studies, 13% were descriptive research, and 19% were of other research types. Besides, another finding is that experimental studies are increasing in number over the years. Zawacki-Richter et al. (2009) have examined 695 articles that were published in five different international distance education journals between 2000 and 2008. Their aim was to primarily determine the tendencies, priorities and uncovered areas in the studies carried out in the field of distance education. Another aim was to define the research methodologies used in the field of distance education. In the examined articles, interaction and communication in the learning communities was found to be the first most used research subject, while instructional design was in second place and learner characteristics was in third. In the research design, it was determined that quantitative studies were predominant. Davies et al. (2010) have examined 308 studies that were completed in Research Universities in North America between 1998-2007 with regards to the study subjects, research design, data collecting techniques and analysis techniques. Most of the studies they have examined were noted to be master's theses. The data in the theses have been generally collected through individual evaluation surveys and analyzed with the use of descriptive statistics. Researchers did not encounter any grounded theory study, which confirms the rarity of this type of research mentioned in the literature. Bozkurt et al. (2015) have analyzed 861 articles published in 7 international distance education journals between 2009 and 2013 for determining research trends in the distance education. The most studied subjects in the analyzed studies were found to be learning communities, interaction and communication, learner characteristics and instructional design. The methods used in the studies were as follows; case studies in qualitative, survey studies in quantitative, and exploratory in the mixed researches. While the data in qualitative studies were collected by interview, observation and document analysis, data in quantitative studies were collected with the surveys and scales. Besides, the participants in the examined studies were higher education students. Şahin (2005) examined 58 experimental studies that tested the effectiveness of web-based distance education comparing it with face-to-face education through the meta-analysis method. According to the research results, majority of the studies have been conducted in USA. Moreover, it was determined that web-based distance education is slightly more effective than face-to-face education

In addition to international distance education studies, determining the tendency regarding distance education studies in Turkey is important as well. Salar (2009) in order to outline the tendencies in distance education studies in Turkey has examined 298 articles that were published in 15 journals about distance education. The most researched subjects in Turkey were; technology acceptance, learner characteristics, design, reassigning the roles of the participants, increasing active learning and interaction. It has been inferred that descriptive studies are dominant against case, correlation and experimental studies. Horzum et al. (2013) have examined 35 Turkish articles about distance education in 14 journals between 2005 and 2011. In the analyzed studies, literature review and descriptive studies were found to be forming the majority of studies. In addition, experts from fields apart from educational technology have also been found to carry out researches in the field of distance education. While satisfaction, attitude and success were important variables in the examined studies, also the high number of comparative studies; -studies comparing face-to-face education environments with distance education environments- were carried out.

When the results of the examined studies are taken into consideration, it is seen that descriptive studies are constituting the majority of the studies in the field (Berge & Mrozowski, 2001; Mishra, 1997; Panda, 1992). Although, Davies et al. (2010) in their studies have stated that there are quite a lot of descriptive studies, they also specified that there is a step-up in the comparative and experimental studies. Saba (2000) stated that researchers have gone beyond the comparative designs in recent years, and methods using discourse analysis and in-depth interviews with the learners have been used. Perraton (2000) has indicated that studies in the field of distance education are being carried out using new methods such as experimental comparative studies, discourse analysis and in-depth interviews. In addition, it is seen in the literature that apart from distance education, studies on different fields have been conducted with the content analysis (for example: Çalık, Ünal, Coştu, & Karataş, 2008; Gül & Sözbilir, 2015). In addition, certain journals publish special issues addressing the content analysis (see. Education and Science Journal, issue 178). Those studies have been emphasized the importance assessing masters' and doctoral theses by doing content analysis (Çalık et al., 2008; Güyer & Çebi, 2015). In this regard examining theses that were published in Turkey is needed to establish new theoretical frameworks, develop new methods and applications in distance education.

Importance of the Research

It is seen that the number of studies examining the national and international journals and theses in the field of distance education with regards to their methods, are increasing. It is seen that the studies have been conducted in the context of method or subject. As it is seen in the literature, the research articles published internationally and nationally in the field of distance education were examined for several times and as a result, in these studies the current tendencies, research subjects, methodologies, data collecting and analyzing techniques were revealed. While there have been descriptive content analysis studies on postgraduate theses, there are no such studies conducted in Turkey. In this sense, it is necessary to examine postgraduate theses written on distance education for guiding researchers and practitioners.

Masters' and doctoral theses always play an important role for revealing the quality of science. In addition, as for the distance education which has been increasingly becoming popular subject in Turkey, methodological examination of the theses on this field will lead the way and give important insights for decision makers and practitioners. From this point, the examination of the theses published in Turkey in the field of distance education with regards to the research methodology, will be beneficial for determining the needs and shortages in the field. Determining Turkey's position on methodological aspects then comparing and contrasting this finding with international literature will support establishing theoretical framework. Thus, this research study will provide guidance for using the most appropriate methods so that distance education can be enhanced and its foundations can be consolidated in future studies. Furthermore, determining the methodological tendencies in distance education, will help planning the distance education which has been accepted as associate professorship in recent year and also will be able to lead the way for researchers who will study in this field to choose their methods. The research can also be helpful to different institutes and teaching staff of distance education for planning the courses and setting policies about research methodology. In consideration of the necessities mentioned above, it is thought that this research will shed light on distance education studies in Turkey.

Aim of the Research

The study is limited to the theses on distance education which are available and open to access in the database of CoHE (Council of Higher Education). In this regard, the purpose of this study is to examine the research trends of the master's and doctoral theses carried out in the field of distance education between 2005 and 2014 in Turkey.

In this direction, the following 2 questions related to the theses' demographic characteristic and 4 questions about methodological trends were attempted to be answered:

Research questions related to the theses' demographic characteristics:

1. What is the distribution of the distance education theses according to the
 - a. theses' type (master's or doctoral),
 - b. years,
 - c. universities,
 - d. institutes,
 - e. departments?
2. How is the yearly distribution of the distance education theses according to the institutes?

Research questions about methodological trends in distance education theses:

1. How is the distribution of distance education theses with regards to the research methodologies (qualitative, quantitative and mixed)?
2. How is the yearly distribution of the distance education theses according to the research methodologies?
3. What is the distribution of research methodologies in distance education theses with regard to the institutes?
4. With regards to the research methodologies,
 - a. What is the research designs?
 - b. What are the sampling methods in the distance education theses?
 - c. Who constitutes the sample population in the distance education theses?
 - d. Which data collection tools are used in the distance education theses?
 - e. Which data analysis techniques are used in the distance education theses?

Method

Research Model

The descriptive content analysis technique, which is a type of content analysis, was utilized in the research. The descriptive content analysis is a technique in which previous research on a given subject are systematically examined to define general tendencies or results (Çalık & Sözbilir, 2014). The descriptive content analysis performed on data, consists of deep processing of the collected data and presenting them under certain notions and themes in a descriptive approach (Yıldırım & Şimşek, 2013, s. 259). From this point of view, demographic characteristics and methodological trends of distance education theses conducted in Turkey are examined with using descriptive content analysis technique in a descriptively and diagnostically way.

Target Population/Sample

The target population of this study consists of theses about distance education indexed in the national thesis center database of Council of Higher Education (CoHE). For acquiring sufficient sample size and examining recent theses, purposeful sampling method was used in this study. Purposeful sampling method is used in order to select facts, events and situations that have certain features and deeply discover and explain these situations (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2012, p. 90). In this direction, the sampling of the study consists of 380 distance education

theses that are open to access and published between the years of 2005-2014. Theses which are not open to access are excluded from the research scope due to the difficulty and time consumption of access through CHE or related institutes.

Data Collection Tool

As data collection tool, a form called “Distance Education Theses Examination Form” (DETEF) created with Google Forms. Text boxes, drop boxes and checkboxes that correspond to *thesis type, thesis subject, publication year, university, institute, department, research method, research design, sampling method, sample population, data collecting tool* and *data analysis methods* were placed in DETEF. A pre-study was done in order to determine whether the fields in DETEF were sufficient for entering data and suitable for the research purpose. In the pre-study, each researcher has encoded randomly chosen 10, and in total 50 theses, using DETEF. As a result of the preliminary study, new information was added to the drop boxes in the DETEF in relation to the theses and additional text boxes were used or additional information was added to the checkboxes. For example, the text boxes fell insufficient in relation to the theses examined; therefore, new text boxes were added. Moreover, it was noticed that a different data (analysis technique, data collection tool, sample group, etc.) mentioned in certain theses was not in drop boxes; therefore, data nonexistent before, were added to the drop boxes. At the end of the pre-study, necessary adjustments and additions for inadequate fields of DETEF were completed and the final form of DETEF was created.

Data Collection Process

Following steps were taken for collecting the data within the scope of the research:

1. In the advanced search section of the National Thesis Center of CoHE, it was made sure that the options included in the search term would be searched in the tag of thesis (thesis name, subject, index, summary) and the theses belonged to the years between 2005 and 2014.
2. In order to assure reaching all theses, search terms were crossed as shown in Figure 1 and 15 search terms were created and the searches were completed in the CoHE thesis database. In literature there are many terms used for distance education (Guri-Rosenblit, 2005), this situation made the researchers select 15 different search terms. In this direction, a total number of 915 theses were found.

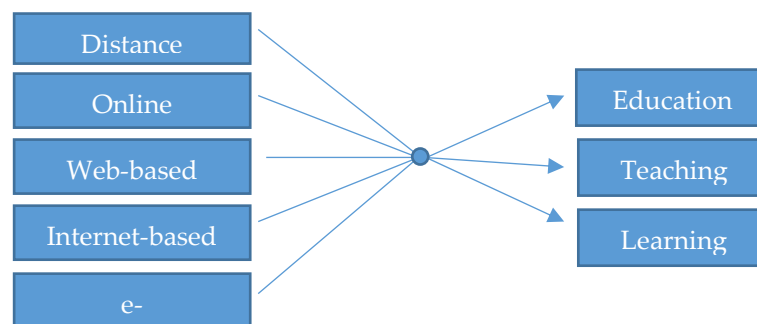


Figure 1. Intercrossing of the Search Terms

3. Theses with the same id number were found due to the usage of broad search terms. In such occurrences, one of the theses were selected and the copies with the same theses number were deleted. After this stage, the total number of thesis in the study was 711.
4. 711theses were downloaded by the researchers from the CoHE thesis database. The process of downloading took place between the dates of 01.06.2015 and 05.06.2015. In this direction, the 75 theses that were not open to access, were removed from the scope of the study. At the end of this stage, the total number of thesis in the study was 636.

5. 636 theses were distributed between the researchers and the method section of the theses were examined. Although downloaded theses contained search terms they may not be related to distance education field, so researchers tagged the irrelevant studies and then after a discussion, 256 further studies are removed. While giving these decisions Moore & Kearsley's (1996) distance education definition which underlines the separation of learning and teaching activities, using technology for communication, and the organization of these processes was utilized. By the end of this stage, the total number of thesis in the study was 380.
6. Prior to the distribution of the 380 theses between the researchers, 10 randomly chosen theses were analyzed by all of the researchers together and coded accordingly. For the consistency of the encoders, Miles and Huberman's (1994) Reliability = Consensus / (Consensus + Dissidence) x 100 formulae was used. As a result of the calculations, the consistency between encoders was found as 93% which is acceptable.
7. Following the confirmation of the consistency between encoders, all of the encoders conducted the content analysis for method sections of the theses. During the content analyzes, the statements of the theses' authors were taken as the base. Due to some of the theses' method sections were not clear, the researchers encoded theses together.
8. The theses of which the method sections were analyzed by the researchers, were saved in the Microsoft Excel format for giving descriptive statistics such as frequency and percentage, along with the pivot tables.

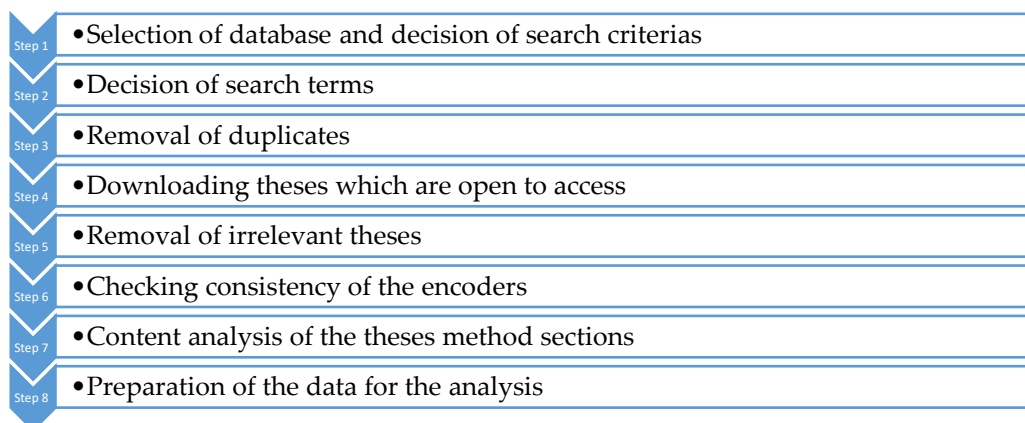


Figure 2. Summary of Data Collection Process

Analysis of the Data

The data collected during the research were analyzed with the Microsoft Excel 2013 software. Pivot tables were used on the collected data. Data were clustered with using the pivot tables, then they were categorized and data's relations analyzed and comments were made. In addition, descriptive statistics such as frequency and percentage of the data were given.

Validity and Reliability

The following precautions were taken to ensure validity and reliability of the research. Reliability in qualitative research studies generally covers the accuracy of the research results. Internal reliability is the execution of the process followed when achieving the research results through valid and accurate steps. In this scope, detailed explanation of the steps taken in the collection and analysis of the data shows that the internal reliability has been achieved. External reliability is about the transmissivity and generalizability of the results obtained. The theses examined in this scope provide generalizability at a similar level when compared to the studies in the literature. Reliability in general sense is repeatability of the research results in qualitative research studies. Internal reliability is about achieving the same result through the same data by other researchers whereas external reliability is

about whether to achieve the research results in the same way. The theses in this study were examined by different researchers within the scope of preliminary examination and the agreement rate among the researchers was found to be at good level. Moreover, detailed explanation of the data collection and analysis processes, encoding, identification of themes based on encoding and calculation of consistency between encoders are the methods necessary to be followed to ensure validity and reliability (Rourke and Anderson, 2004). Accordingly, the fact that such methods were applied and necessary precautions were taken in this research increased the validity and reliability of this study.

Results

The findings of the research are grouped as demographic characteristics and methodological trends then they are given under appropriate titles.

Demographic Characteristics of Distance Education Theses

Type of the Theses

The majority of the theses in the field of distance education consists of master's theses. While the number of master's theses published between the years 2005-2014 is 283 (74.5%) the number of doctoral theses in the same period equals to 97 (25.5%). Undoubtedly, high number of masters' theses was affected by higher number of masters' programs than doctoral programs in Turkey and short durations of masters' programs than the durations of doctoral programs.

Yearly Distribution of the Theses

Yearly distribution of the master's and doctoral theses in the field of distance education is given in Figure 3.

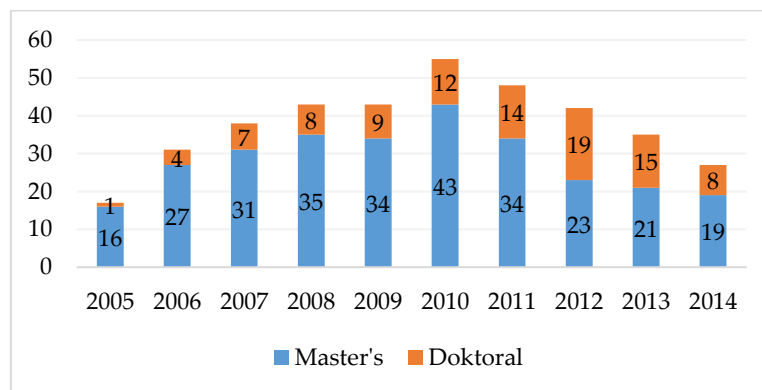


Figure 3. Yearly Distribution of the Theses

When the yearly distribution of the theses in Figure 3 is examined, it can be seen that the total number of theses in the field of distance education were increasing between 2005 and 2010, this trend is reversed with slower momentum after the year 2010. Trend in doctoral studies differs from master's studies, number of doctoral theses continues to increase steadily with some exceptions in recent years but 2010 is breaking point for the number of master's theses. One of the reasons for this may be closure of some of the distance education programs or researchers have shown tendency towards emerging topics (Martin et al., 2011).

Distribution of Theses with Regard to Universities

Distribution of master's and doctoral theses in the field of distance education with regard to universities is given in Figure 4.

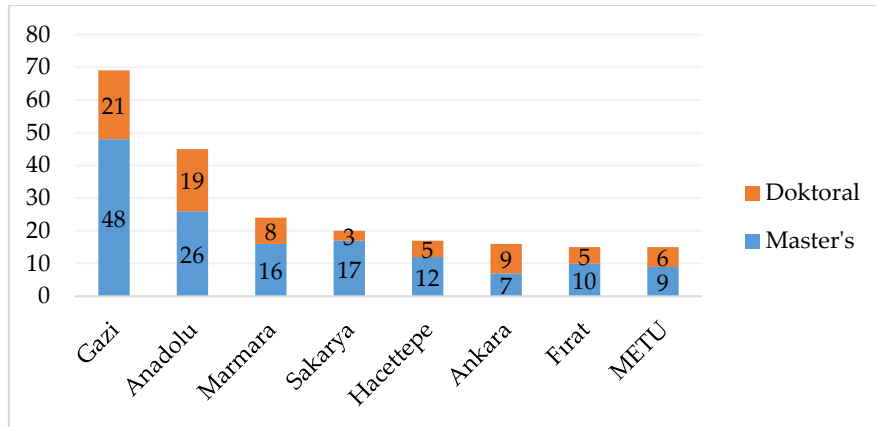


Figure 4. Distribution of Theses with regard to Universities

When the distribution of theses with regard to universities in Figure 4 is examined, it can be inferred that most of the studies in the field of distance education are carried out in Gazi University. The universities of Anadolu, Marmara, Sakarya, and Hacettepe follow in the respective order. Other universities (49 in total) completed 159 theses related with distance education, in which only 21 of them are doctoral studies while rest of them (138) are master's studies. These ratios are expected since number of students in doctoral programs are comparably low to master's programs. In addition, it is thought that high number of theses written at Gazi University is affected by the multiple masters' and doctoral programs (Educational Technology, Computer Education and Instructional Technology, Computer Education, Information Systems etc.) at this university (Gazi University Institute of Educational Sciences, 2016) and the high number of theses written at Anadolu University is caused by the availability of a faculty of open education and a department of distance education.

Number of Theses with Respect to Institutes

The number of theses with respect to institutes is given in figure 5.

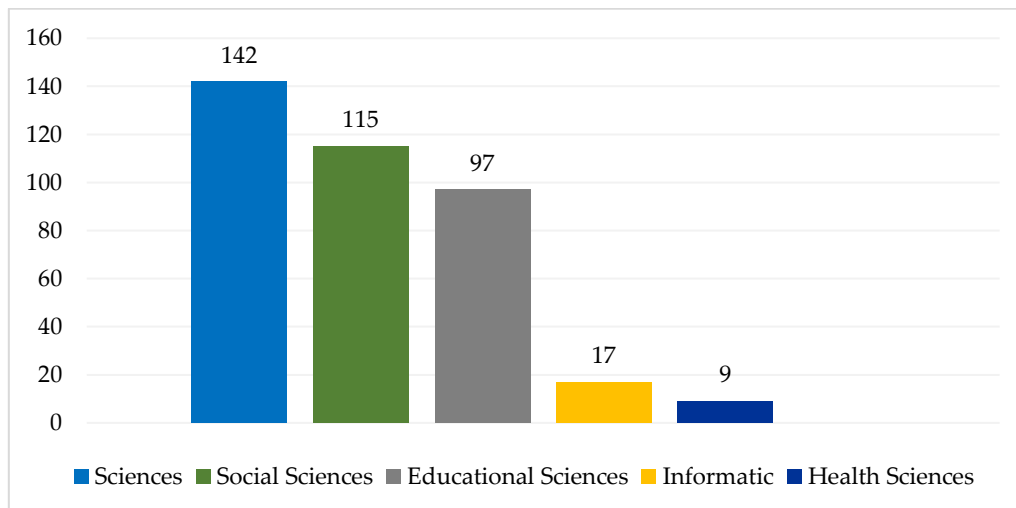


Figure 5. Number of Theses with Respect to Institutes

When the number of theses with respect to institutes in Figure 5 is examined, it can be seen that the majority of the theses are carried out in the institutes of science (142), social sciences (115) and educational sciences (97). In addition, 17 theses were carried out in informatics institutes, 9 in health

institutes. When examining the ratios in the figure 5, it is seen that there are no big differences especially between the institutes of science, social sciences and educational sciences and these ratios have close values.

Number of Theses with Respect to Departments

The number of theses in the field of distance education with respect to departments is given in figure 6.

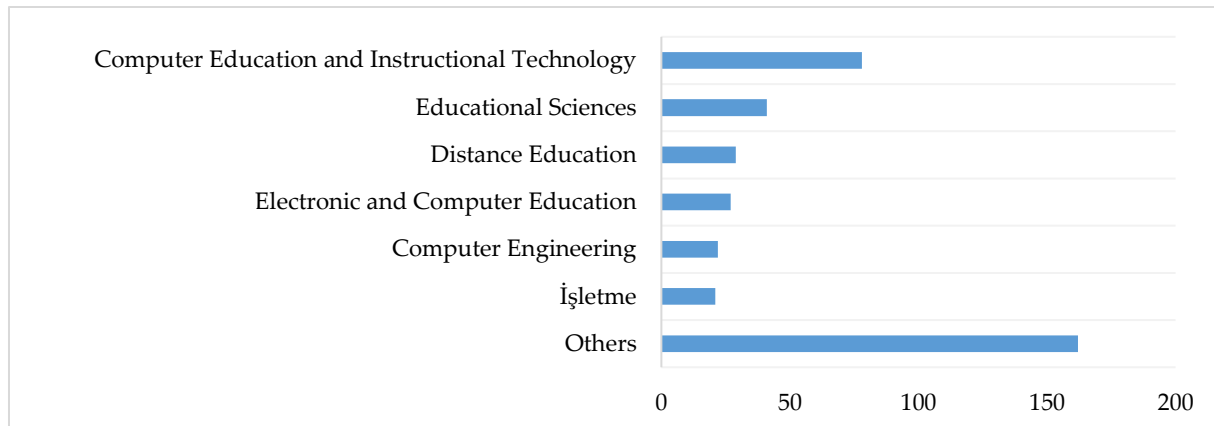


Figure 6. Number of Theses with Respect to Departments

Upon examination the number of theses with respect to department in Figure 6, it can be seen that majority of the studies are conducted in Computer Education and Instructional Technologies Department. The departments of Educational Sciences, Distance Education, Electronics and Computer Education, and Computer Engineering are following this department in the respective order. Furthermore, a limited number of distance education studies were carried out in 76 different departments (computer department, information technologies department, management information systems department).

Yearly Distribution of the Theses According to the Institutes

Yearly distribution of the theses in the field of distance education with respect to institutes is given in figure 7.

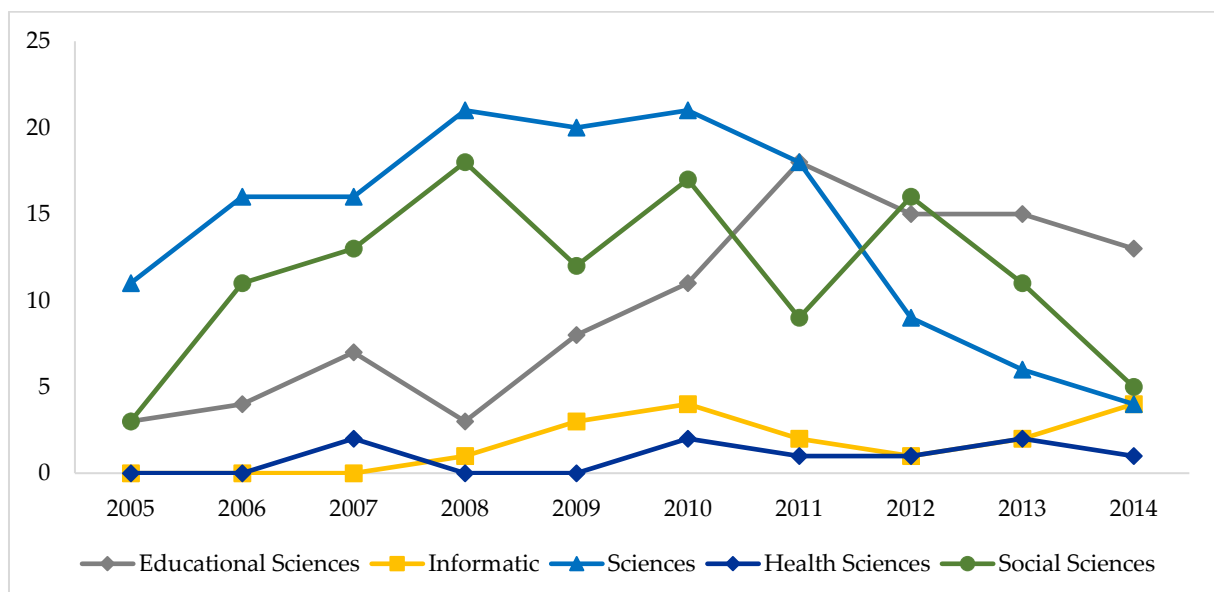


Figure 7. Yearly Distribution of the Theses According to the Institutes

In Figure 7 it can be seen that the number of distance education theses conducted by the educational science institutes is increasing between the years 2005 and 2011. In addition, a decrease is seen in the number of theses carried out in the science institutions, beginning from the year 2010. The reason why institutes of educational sciences have produced high number of theses on distance education may be the influence of the departments of computer education and instructional technologies, educational sciences and distance education within these institutes. Indeed, it is seen in Figure 6 that the theses were mostly written in the departments mentioned above. In this sense, the reason that number of theses written in sciences and in social sciences have gradually decreased over the years can be explained by the fact that entrance of distance education science fields under the roof of education science institutes which are newly opened since 2010 (Council of Higher Education, 2016), institutes of educational sciences have recently given importance to the theses on distance education and increasingly been working in this field.

Methodological Trends in Distance Education Theses

Distribution of Theses with Regard to Research Methodology

Distribution of theses in the field of distance education with regard to research methodologies is given in figure 8.

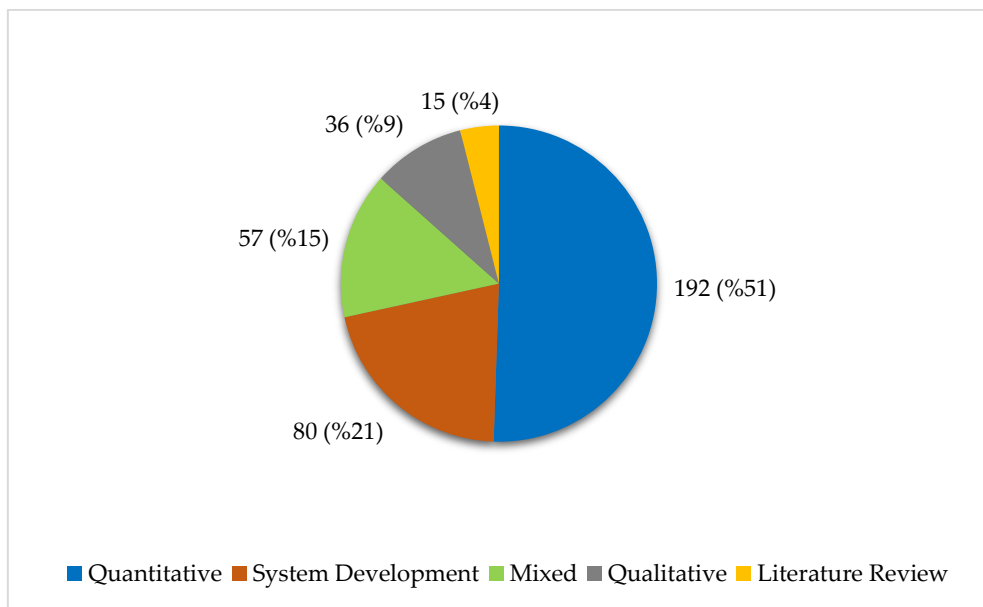


Figure 8. Distribution of Theses with Regard to Research Methodology

When Figure 8 is analyzed, it can be seen that quantitative research methodology is the most used methodology in distance education theses. System development, mixed method, qualitative, and literature review follow respectively. These findings point out that quantitative methodology is the foundation of most distance education theses conducted in Turkey. And the reason for this may be researchers' efforts to generalize their studies, shorter implementation duration, reaching intended wider sample easier and faster, time and cost advantages (Göktaş et al., 2012).

Yearly Distribution of the Theses According to the Research Methodology

Yearly distribution of theses in the field of distance education according to research methodology is given in figure 9.

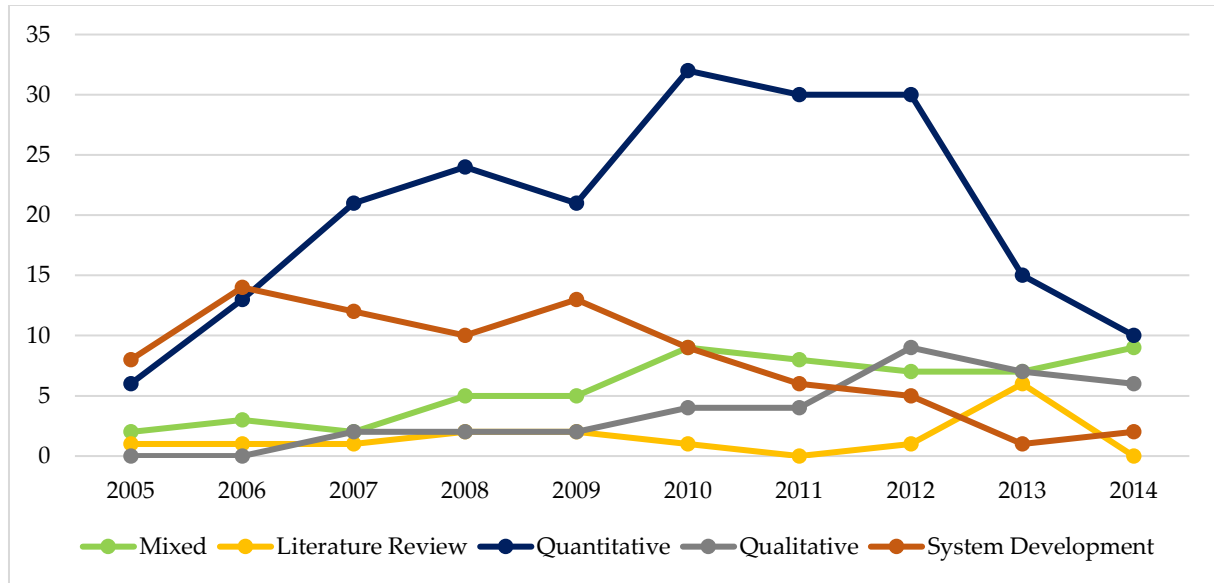


Figure 9. Yearly Distribution of the Theses According to the Research Methodology

In Figure 9, it can be inferred that distance education theses carried out with quantitative methodology increased in number between the years 2005 and 2010, however rapid decline occurred after 2012. In addition to this, distance education theses carried out with the use of qualitative methodology, slightly increased over the years, however this increase was not substantial. On the other hand, it can be stated that the system development studies also rapidly declined after the year 2009. When the mixed method studies are taken into consideration, this type of studies are seen to have a similar tendency with the qualitative studies, however these studies do not seem to have a steady tendency over the years. In general, there is a significant decrease in the number of studies conducted with the quantitative methodology when compared to other methodologies. If the decrease in the number of distance education studies after the year 2010 (Figure 3) considered, it can be said that this decrease effected studies which employed quantitative methodologies the most. Moreover, the increasing number of theses written with qualitative research methodology from 2010 to onwards indicates that the interpretative paradigm has been increasingly adopted in the field (Yıldırım & Şimşek, 2013, p. 34).

Distribution of the research methodologies with regard to the Institutes

Distribution of the research methodologies with regard to the institutes is given in figure 10.

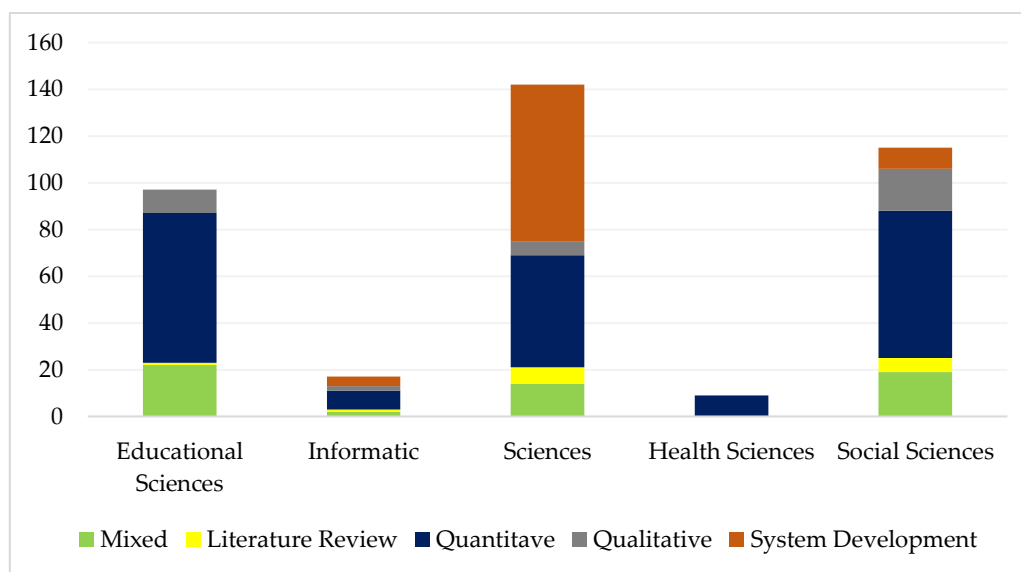


Figure 10. Distribution of the research methodologies with regard to the Institutes

When Figure 10 is examined, it can be seen that the most used methodology in these conducted in the Educational Sciences Institutes is the quantitative methodology, followed by mixed method studies, while Science Institutions used system development the most, followed by quantitative studies. Similar to Educational Sciences Institutes, studies conducted in the Social Sciences Institutes also heavily feature quantitative methods, closely followed by mixed and qualitative studies. In the light of these findings, it can be said that there is a tendency of system development studies in Institute of Science, while there is a tendency of quantitative method studies in Institute of Educational Sciences and Social Sciences.

Research Designs with Regard to Research Methodology

Research designs used in the theses with regards to the research methodology are given in Table 1.

Table 1. Research Designs with regards to Research Methodology

Quantitative Research Methodology		Qualitative Research Methodology		Mixed Research Methodology	
Research Design	f	Research Design	f	Research Design	f
Survey	125	Case Study	41	Case Study	41
Experimental	93	Not Available	38	Not Available	31
Not Available	27	Action Research	6	Survey	28
Other	2	Other	4	Experimental	19
Correlational	2	Phenomenology	2	Action Research	6
Causative	1	Grounded Theory	2	Other	2
Meta-analysis	1	Cultural Analysis	2	Phenomenology	2
				Grounded Theory	2
				Correlational	1
				Cultural Analysis	1

When Table 1 is examined, due to usage of more than one research design in some of the studies, the total number of research designs has surpassed the total number of theses. Upon the examination of the Table 1, it can be derived that the survey design is the most used design in theses carried out with quantitative methodology, followed by the experimental design. Besides, case study is the most used

design in qualitative and mixed methodology. In addition, it came to light that many studies, especially theses that used the qualitative and mixed methodologies, did not clarify their research designs. Another observation was that the survey design was mostly used in the qualitative method sections of mixed methodology studies, while case studies were used in the sections in which the qualitative method was used. Furthermore, another derivation that can be made from Table 1 is that, research designs such as correlational, causal, and phenomenological design are rarely used. It can be concluded from these findings that there is a tendency in the quantitative research methodology towards generally identifying an existing situation and conducting comparative studies, but in the qualitative research methodology there is a tendency towards interpreting a situation in all its aspects.

Sampling Methods with Regards to the Research Methodology

Sampling methods used in the theses with regards to the research methodology are given in Table 2.

Table 2. Sample Selections with regard to the Research methodology

Quantitative Research Methodology		Qualitative Research Methodology		Mixed Research Methodology	
Sample Selection	f	Sample Selection	f	Sample Selection	f
Not Available	116	Purposeful	18	Not Available	34
Convenience	26	Not Available	16	Purposeful	21
Purposeful	18	Convenience	2	Convenience	8
Random	16	Random	-	Random	7
Other	12	Stratified	-	Other	4
Stratified	4	Other	-	Stratified	2

When Table 2 is analyzed, it can be seen that in the majority of these in which quantitative methodology is used, the sampling method is not mentioned. In qualitative methodology, it was identified that purposeful sampling was used mostly. Furthermore, in theses in which mixed methodology is used, the sampling method is not mentioned in the same way with theses in which quantitative methodology is used. Generally, in the theses in which the sampling method is not identified, information such as who were the participants and the number of participants are given (ie. 124 university students). In addition, the reason behind working with fewer participants and selecting participants in accordance with the purpose of the study are effective in taking purposeful samples in qualitative methodology. The reason behind the negligence of stating sampling methods in research may be due to the researchers limited knowledge of research methodologies (Göktaş et al., 2012; Şimşek et al., 2009)

Sample Populations with Regards to the Research Methodology

Sample populations used in the theses with regards to the research methodology are given in Table 3.

Table 3. Sample Populations with regards to Research Methodology

Quantitative Research Methodology		Qualitative Research Methodology		Mixed Research Methodology	
Sample Populations	f	Sample Populations	f	Sample Populations	f
Undergraduate	70	Adult	20	Undergraduate	35
Adult	66	Undergraduate	11	Adult	25
Vocational School	37	Other (University, Material, Book etc.)	6	Vocational School	7
Secondary School	17	Graduate	4	Other (University, Material, Book etc.)	5
High School	17	Vocational School	3	Secondary School	3
Graduate	13			High School	1
Other (University, Material, Book etc.)	2			Graduate	1

When Table 3 is examined, due to two separate sampling groups were used in some of the theses, the total number of sample populations surpassed the total amount of theses. Upon the examination of Table 3, it can be inferred that in studies carried out with all methodologies, the majority of the participants consists of undergraduate students and adults. Also, it was determined that studies with participants from secondary and high schools are rare. These findings can be interpreted as the distance education applications are heavily used in universities and carrying out studies in secondary and high school levels is difficult or time-consuming for researchers. This reason, may direct the researchers to conduct their researches with the university students (Varışoğlu, Şahin, & Göktaş, 2013). In addition, distance education has a great advantage in the sense of removing the time and place limitations while also allowing lifelong education, therefore holding an important place in supporting the educational needs of adults. Thereby the fact that there are many studies conducted on the adults, is seen as an expected result.

Data Collection Tools with Regards to the Research Methodology

Data collection tools used in the theses with regards to the research methodology are given in Table 4.

Table 4. Data Collection Tools with Regard to the Research Methodology

Quantitative Research Methodology		Qualitative Research Methodology		Mixed Research Methodology	
Data Collection Tools	f	Data Collection Tools	f	Data Collection Tools	f
Survey	101	Interview	26	Interview	45
Scale	79	Other	13	Survey	28
Achievement Test	65	Document Analysis	12	Scale	22
Other	22	Observation	6	Achievement Test	18
Log Statistics	16	Focus Group Interview	4	Other	18
		Log Statistics	4	Log Statistics	16
		Scale	2	Observation	14
				Focus Group Interview	10
				Document Analysis	8

When Table 4 is examined, due to more than one data collection tool were used in some of the theses, the total number of data collection tools surpassed the total number of theses. Upon the examination of Table 4, it can be seen that in theses that are carried out with using quantitative

methodology, the most used instruments are respectively surveys and scales, while in theses conducted with qualitative and mixed methodology, the data are generally collected with interviews. Another way to collect data is using system logs, which is popular in recent years. Since using questionnaires, scales and interviews are easy and quick, this case may have an effect to not use system logs in a satisfactory number (Baş, 2005). In addition, researchers may have no competency on this subject because system logs require effort, knowledge and skill.

Data Analysis Techniques with Regards to the Research Methodology

Data analysis techniques used in the theses with regards to the research methodology are given in Table 5.

Table 5. Data Analysis Techniques with regard to the Research Methodology

Quantitative Research Methodology		Qualitative Research Methodology		Mixed Research Methodology	
Data Analysis	f	Data Analysis	f	Data Analysis	f
Reliability Analysis	97	Content Analysis	19	Content Analysis	32
Anova	80	Other	12	Reliability Analysis	22
Independent Samples t-test	79	Descriptive Analysis	5	Independent Samples t-test	18
Correlations	26	Not Available	4	Anova	17
Chi-square	25			Descriptive Analysis	13
Exploratory Factor Analysis	24			Paired Sample t-test	12
Confirmative Factor Analysis	24			Other	12
Paired Sample t-test	23			Confirmative Factor Analysis	9
Mann-Whitney u-test	21			Correlations	8
Ancova	20			Exploratory Factor Analysis	7
Kruskal Wallis	14			Mann Whitney u-testi	7
Regression	8			Kruskal Wallis	5
Wilcoxon	7			Chi-square	4
Manova	4			Wilcoxon	4
Structural Equation Modeling	3			Regression	2
One Sample t-test	-			Structural Equation Modeling	2
Mancova	-			Ancova	1
				Manova	1
				Not Available	1

When Table 5 is examined, due to more than one statistical analysis can be performed on a given data, the total number of statistical analysis techniques surpassed the total number of theses. In close examination of Table 5, it can be said that in theses carried out with the use of quantitative methodology, the most used analysis methods are; reliability analysis, ANOVA and independent samples t-test, while for theses carried out with qualitative methodology, it is content analysis and in the mixed methodology theses they are respectively; content analysis, reliability analysis, independent samples t-test and ANOVA. When taking into consideration that many survey and experimental studies are carried out, it can be said conducting anova and independent samples t-test, is a sign of performing many comparative analyses in the distance education theses. These findings can be interpreted that basic statistical methods, which are quantitative data analyzing techniques, are utilized. The reason behind the preference of these analyses might be the easier explanation and interpretation of such analyses results (Göktaş et al., 2012; Selçuk et al. 2014).

Results and Discussion

Results and Discussion for Demographic Characteristics of Distance Education Theses

In the light of the findings of the study, it was seen that the majority (74.5%) of the studies consists of master's theses. Davies et al. (2010) similarly found in their research that the number of master's theses is higher than doctoral theses. The reason why the rate of masters' theses is high can be explained by the lack of doctoral programs in Turkey, shorter durations of master programs than doctoral, higher number of students accepted for master programs than those for doctoral programs or higher level of conditions required for acceptance to and graduation from doctoral programs than master programs. In consideration of these cases, it is thought to be an expected finding. In addition, it was observed that theses published in distance education had increased from 2005 to 2010; however, the numbers have dropped since 2010. The reason behind this could be that as Martin, et al. (2011) mentioned the researchers focus on the new topics which are in the New Horizon Reports (Johnson, Adams Becker, Estrada, & Freeman, 2014, 2015; Johnson et al., 2016), the interest has decreased with the closure of some of the distance education programs (Özkök, 2009) or there are fewer samples to study with, and the massive open online courses (MOOCs) which have been studied commonly in the literature are yet to be common in (Aydın, 2016) Turkey.

Gazi University was found to be the place where most of the studies in the field of distance education were conducted. In this regard, Gazi University was followed by other universities such as Anadolu, Marmara, Sakarya, and Hacettepe Universities. The reason for Gazi University having the most published studies may be due to the fact that there are more than one faculties of education (Gazi University Institute of Educational Sciences, 2016), thus numerous programs in master's degree and doctorate levels exist. In addition, universities that have distance education centers and/or offering their courses using distance education technologies, have the most amount of master's and doctoral theses. Furthermore, Anadolu University which is the only open university in Turkey has the greatest ratio of doctoral to master's which suggests that distance education is an important research area and it is a frequent subject for doctoral studies. On the other hand, aforementioned universities are also mentioned in the study of Şimşek et al. (2009) in which the master's theses of educational technologies are examined, can be interpreted as these universities being dominant in the theses studies carried out in the field of educational sciences. In this direction, it is considered that examining theses' studies carried out in these universities in terms of quality could bring important contributions to the educational science. Furthermore, this result is considered important that universities with experience and theses' studies should be prioritized for the opening of undergraduate, graduate and doctoral programs in distance education which has been determined to be a new associate professorship.

When the examining theses that were conducted by the institutes, the theses were determined to be mostly carried out in the institute of science. Institute of social and educational sciences followed respectively. However the difference is negligible and proportions were close to each other. On the other hand, the number of distance education studies in the institute of science were observed a decrease after the year 2010, while the number of distance education studies in the institute of educational science were increasing. These findings can be interpreted as the institute of educational sciences institutions have frequently conducting studies in the field of distance education over the last few years. One of the reasons for this can be explained by the increasing number of institutes of education sciences in universities since 2010 (Council of Higher Education, 2016). Furthermore, the reason behind the institute of educational sciences being conducted a lot of studies over the last years may be due to the departments within its structure. As a matter of fact, the findings of this study indicating most of the studies are conducted in the computer education and instructional technologies, distance education and educational sciences department, along with these departments having been within institute of educational sciences, supports this research findings. The fact that distance education theses are written in educational or social sciences institutes helps to brought to the forefront the social and educational aspect of distance education. The theses written in institutes of science mainly features the technological and technical aspect of distance education. When handled in this sense, it is understood that there has

been an effort to prevent the lack of infrastructure by featuring the technological and technical aspects of distance education and after that social and educational aspects have been focused on in recent years. When the development of the educational technology field has taken into consideration, it can be stated that the progress is similar (Alkan, 2011) and this is an expected field-wise development.

Results and Discussion for Methodological Trends in Distance Education Theses

When the research methodology in the distance education theses were examined, the quantitative methodology (51%) was noticed to be used more than the other methodologies (qualitative and mixed). This was followed by system development (21%) and mixed studies (15%). When the results of the research methodology were evaluated for institute basis, product development theses' studies were identified to be plentiful in the institute of science, while the quantitative studies was the most used research methodology in the institute of educational and social sciences. Quantitative methodology is seen to be the most used research methodology in the studies that examined internationally published theses and articles between the years of 1990-1999 (Berge and Mrozowski, 2001), theses published between the years of 1998-2007 in the field of distance education (Davies et al., 2010), and distance education articles between 2000-2008 (Zawacki-Richter et al., 2009). Davies et al. (2010) in their study in which they have researched the distance education theses published internationally between the years of 1998-2007, found quantitative methodology to be prevalent, which also shows that the distance education theses published in Turkey have the same research methodology tendency. Similarly, Horzum et al. (2013) in their study where they researched the Turkish articles on the distance education having been came to the conclusion that there is a majority of studies that are based on the quantitative methodology, supports the international study results (Zawacki-Richter et al., 2009) and the results of this study. It is normal that the quantitative research methodology is commonly used in articles and theses on distance education across the world. As the first example of the case, product development and distance education are technology-based educational practices. In this sense, it is natural that quantitative research methodologies are featured in the development and practice of technology. Secondly, by the nature of distance education, students mostly receive the education in practice whenever they want to but they go to the institution of distance education only for exams. In this regard test, questionnaire or scale can be completed when desired in the quantitative research methodology. It is emphasized that interview, observation and document analysis are used together in the qualitative research methodology (Yıldırım & Şimşek, 2013). It is very difficult to make observations and interviews in asynchronous settings of distance education, even the document analysis cannot be performed alone on the requested level. In synchronous settings, the methods of interview can be utilized whereas participatory observation is not functional and document analysis becomes harder. Since those three are not handled together, strong research designs of qualitative research methodology couldn't be used in distance education theses. In summary, due to not being able to reach the students in desired time and channel in the distance education practices, it is expected to be widely used quantitative research methodology and data collection tools. Indeed, in the education research articles (Göktaş et al., 2012), education technologies articles (Küçük et al., 2013; Şimşek et al., 2009), Turkish education articles (Varışoğlu et al., 2013) and education technology theses (Şimşek et al., 2008) revealing the majority of the studies are based on the quantitative methodology, supports the idea that the quantitative methodology is the most used research methodology in Turkey. A probable reason for this may be that the researchers are in need of the comparative analyzes in order to test the new research methods, application and education effectiveness in their studies. Furthermore, quantitative studies providing more time, speed and convenience to the researchers when compared to the qualitative studies (Büyüköztürk et al., 2012) may be the reason behind the researchers choosing to use the quantitative studies (Küçük et al., 2013).

In addition to these results, the number of distance education studies based on the quantitative methodology are observed to be decreasing since 2010. Despite the decrease in the number of distance education studies based on the quantitative methodology, studies based on the qualitative methodology have increased in the year 2010, however this increase has not been constant in the following years. Bozkurt et al.'s (2015) conclusion that the qualitative methodology was dominant in articles of distance

education between 2009 and 2013, supports the finding that qualitative methodology is on the rise especially after 2010. When the findings are evaluated in general, it can be said that the researchers working in the field of distance education, are testing the effectiveness of the methods, practice or teaching by using the quantitative methodology. In addition, the researchers also have a tendency to gather detailed and profound information reaching a low number amount of participants by using the qualitative methods. Besides, in recent years the interpretive paradigm consider whole picture, which includes environmental conditions along with cases, situations, and phenomenon, is seen important (Yıldırım & Şimşek, 2013).

In this study, it was seen that the most used research design in the distance education theses based on the quantitative research methodology was the survey research design and this was followed by experimental research design. Similarly in the literature, it was determined that the survey research designs were used mostly in the articles (Berge & Mrozowski, 2001; Bozkurt et al., 2015) and theses' studies (Davies et al., 2010) in both nationally and internationally published studies regarding distance education. Survey research design in quantitative research model is a design which is revealing the current situation and its prevalence. The design may have been preferred greatly in distance education theses due to easier planning, practice and finalization than the experimental design (Selçuk et al., 2014). Besides, it is quite difficult to ensure the process and validity in experimental design studies. Since factors such as continuity among participants and loss of experiment affect the design, it is a challenging process. In consideration compelling process for establishing setting and developing materials in distance education practices as well as the challenges of experimental design, this situation may have directed researchers to prefer survey design studies (Göktaş, et al. 2012). Another observation in this study was that, case studies were the most carried out research design in the distance education theses based on the qualitative methodology, and also survey research design was most used in the quantitative method sections of studies based on the mixed methodology, while case studies were most used in the qualitative method sections of studies based on the mixed methodology. Similarly, it was determined that case studies were the most used research designs in published articles (Berge & Mrozowski, 2001; Bozkurt et al., 2015) and theses' studies (Davies et al., 2010) in distance education based on the qualitative methodology. Case studies are defined as empirical research in which the boundaries between the contents of a current phenomenon within the real-life framework is not clear and which is used when there are multiple data sources (Yıldırım & Şimşek, 2013). It is thought that acceptance of distance education as a real-life setting has been effective in common use of case studies. In addition, another observation was that in some of the quantitative and many of the qualitative studies' method sections, the research designs were not clearly stated by the authors and in these studies general information regarding how the studies were carried out was given (Şimşek, et al., 2009). On the other hand, one of the frequent issues encountered in theses studies conducted with mixed research methodology is only collecting and analyzing qualitative and quantitative data to report them in a mixed manner. In this case, either no design is written in many theses, how the data have been collected is explained, or the data collection tool is written down as if it was the design. In this sense, it is necessary to provide more detailed information in research methods course of undergraduate and graduate programs on how mixed search is to be conducted and reported (Şimşek, et al., 2008). When considering pragmatic paradigm which has increased its influence on the educational philosophy, it would be useful to provide mixed-method research course as mandatory or as selective in postgraduate programs.

When the sampling method in the distance education theses were examined, it was seen that the sampling method was not clarified in many distance education studies based on the quantitative and mixed methodologies, while purposeful sampling was the most used method in theses based on the qualitative methodology. In the quantitative theses, general information regarding who the participants were and how many people were reached, were stated by the authors. In the experimental design theses' studies in which the aim was generally to test the effectiveness of a distance education system, researches may have been pushed to make research with students in the distance education programs (Baydaş, Küçük, Yılmaz, Aydemir, & Göktaş, 2015; Erdoğan & Çağıltay, 2009; Göktaş et al., 2012). This situation reduces the possibility of taking samples with the simple random method. In other

words, this is in line with one of the findings of this research. A similar situation is encountered in the educational technologies studies in which master's (Şimşek et al., 2009) and doctoral (Şimşek et al., 2008) theses were analyzed. On the other hand, upon the examination of the sampling methods in the qualitative studies, it is seen that purposeful sampling is the most used sampling method in these studies. According to Büyüköztürk et al. (2012), purposeful sampling requires working with conditions that have certain criteria or features. Therefore, the participants in these studies being particular, that is to say participants that are enrolled in distance education, was an important factor for taking purposeful sampling method. Since distance education practices are mainly asynchronous, students can take part in the learning environment and follow up the materials. In applications based on printed materials, a completely independent process is taking place. It is quite difficult from this aspect to select sample by random and fill in the measuring tools in distance education. In this respect, it is difficult to sample randomly and make participants fill out data collection instruments. Instead of this, convenience sampling method in which people that are online at the moment of data collection participate, is preferred (Erdoğan & Çağiltay, 2009; Göktaş et al., 2012). In a general review, the target group, which constitute distance education students in quantitative and qualitative research studies, has lead the researchers to select convenience or purposeful sampling method.

When the sample population of the theses studies conducted in the field of distance education are examined, it is seen that undergraduate students and adults are the most and dominantly selected sample population in quantitative, qualitative and mixed methodology. In addition, it is determined that a few number of studies were conducted in secondary and high schools. The main reason why undergraduates and adults are chosen for the sample group in distance education theses can be explained by the following: First of all, distance education students' self-regulated learning which is the practice of independent learning through technology (Uysal, 2015) and the readiness of technology self-efficacy (Demir-Kaymak & Horzum, 2013) should be on a high level. Since this is more common among young adults and adults, target group of distance education is mainly composed of them. Similarly, in the literature, undergraduate students constitute the majority of the sample population in studies conducted in education (Göktaş et al., 2012) educational technologies (Şimşek et al., 2008; Şimşek et al., 2009; Kılıç-Çakmak et al., 2015; Küçük et al., 2013) and distance education (Bozkurt et al., 2015; Horzum et al., 2013). These findings point out that education, educational technologies and distance education studies' focus is on higher education (Baydaş et al., 2015). Moreover, the researchers substantially determining the purposes of their studies in accordance with higher education, is considered to be an important factor for choosing this sample population (Baydaş et al., 2015; Göktaş et al., 2012; Selçuk et al., 2014; Şimşek et al., 2009). However, in a different perspective, when the number of distance education studies conducted with adults are compared to other studies, it will be seen as a significant difference. Therefore, conducting a lot of researches on adults in the field of distance education, could be interpreted as a support for the acceptance of Knowles' (1984) adult education study (Simonson et al., 2006) as a theory of distance education. In addition to this, due to distance education presenting an opportunity for lifelong learning (Horzum, 2007) and people from all of community feeling the need for distance education (Saba, 2000), is increased the possibility of the K12 level students being in the field of interest of the distance education.

The most used data collection tools in the studies were determined as survey and scales in quantitative research methodology studies, interviews in qualitative research methodology studies, survey and scales in the quantitative sections of the mixed research methodology studies and interviews in the qualitative sections of the mixed research methodology studies. Similarly, it was observed that surveys were used as the quantitative data collection tool while interviews were used as the qualitative data collection tool in the studies conducted in the field of distance education (Bozkurt et al., 2015; Davies et al., 2010) and educational technologies (Kılıç-Çakmak et al., 2015; Küçük et al., 2013; Şimşek et al., 2009). Moreover, when the findings of the study were taken into consideration, especially the system logs were found not to be used widely in the distance education. The reason as to why system logs were rarely used as data collection tools may be due to the fact that survey and scales can be applied easier and faster (Baş, 2005) while system logs require more time, effort, knowledge and skill.

Furthermore, supporting the findings with the data that will be collected from the system logs regarding the individual's success, knowledge, behavior and attitude in the online learning may lead to reach more reliable findings. Another reason why the distance education system records are not taken into account can be associated with the fact that large data and analysis have not been widely used in Turkey yet. Indeed, there are so many data in the conversation and correspondence records that it is necessary to know how to work with large data and be equipped about the subject for the analysis of such large data. Thus, in future research studies it would be useful to analyze system logs data with an expert and evaluate other types of data (quantitative and qualitative) together could give clearer and more provable results. Besides, in internationally studies, evaluating and monitoring the academic success processes of the students in the online learning, has become an important and trend subject in the identification of the effectiveness of the learning process, success and possible problems of the students (Johnson, Adams, & Cummins, 2012). From this point of view, the data collected from the systems by which learning analytics will be performed, that is to say from the distance education systems, is considered to be a data collection method that will be often used in our country in the coming years. In addition, it is an unexpected situation that there is no participatory observation available in distance education theses especially in which the case study is so popular design. The reason can be shown as the properties of distance education systems. Because many systems have a text-based operation rather than visual and audio based operation, and this does not constitute observable environments for distance education studies. In this sense, data collection through observation method being limited seems to be normal.

When the data analysis techniques used in the distance education studies are examined, it is seen that reliability analysis, Anova and unrelated samples t-test were the most used techniques in quantitative data, while case study was the most used techniques in the qualitative data. Similarly, it was seen that case study was the most used analysis technique on the qualitative data collected in the mixed research methodologies, while on the quantitative data Anova and unrelated samples t-test were the most used analysis technique. Similar statistical techniques were observed in the literature conducted in the field of education (Göktaş et al., 2012), educational technologies (Kılıç-Çakmak et al., 2015; Küçük et al., 2013; Şimşek et al., 2008; Şimşek et al., 2009) and distance education (Bozkurt et al., 2015; Davies et al., 2010; Horzum et al., 2013). Especially when survey and experimental studies being carried out by a great amount is taken into consideration, the heavy usage of comparative analyzes such as Anova and unrelated sample t-test is seen to be a natural outcome (Göktaş et al., 2012). It can be defined as an important and desired situation that the content analysis rather than descriptive analysis is adopted in qualitative data analysis. However, it is accepted as a shortcoming that advanced statistical methods such as Structural Equation Modeling (SEM), Manova, regression, multi-factor Anova, etc. are not preferred in quantitative research methodology in which survey and experimental research designs are primarily used in the theses. It is known that more detailed and explanatory findings can be obtained through analysis performed with such advanced statistics methods. In this regard, it would be useful to use advanced statistical techniques in future studies. Additionally, the Cronbach alpha value was calculated as the reliability analysis of the studies examined in this research and this value was often reported in the theses. Şimşek et al. (2009) in their study examining master's theses published between 2000 and 2007 in the field of educational technology, emphasized that the reliability of the data collection tools was not reported and this was a serious problem. Therefore, the result of this study indicating the reliability of the data collection tools in the distance education studies were calculated and reported, is a sign that this subject has been recognized an important issue and has been taken into account by the researchers in last years.

Suggestions

As a result of the research, it was revealed that the theses written on distance education in Turkey between 2005 and 2014 mainly focused on the establishment of quantifying the current situation, employed convenience sampling methods in which university students were chosen mostly, avoided using advanced statistical techniques, and were mainly in descriptive nature.

- Considering that the number of master' theses is higher in the field of distance education, activities for establishing distance education departments at universities should be accelerated so that more qualified doctoral theses with higher scientific value can be written. Considering to the fact that the number of theses published in this field has decreased since 2010, it can be recommended to utilize MOOCs which are new form of distance education systems.
- It would be useful if academics who has published in this area share their ideas and experiences in newly established universities and programs.
- When science institutes experience in system development and educational sciences institutes experience in theoretical studies taken into account, it will be advisable to invest in joint studies by these institutes to improve distance education field.
- Emphasizing mixed methods in distance education studies, for explaining numerical results better and evaluating the results in depth rather than just quantitative or qualitative studies, will help examine distance education more comprehensively and in a deeper way.
- When conducting distance education studies, using quantitative or qualitative data collection tools together, enriching the research results through those two data collection tools and explaining the data comparatively will provide more valid, reliable and confirmable results.
- Especially the system logs in distance education systems can provide more valid and reliable data on individuals' achievements, knowledge, behaviors and attitudes.
- Based on the finding that sampling method has not been mentioned in most of quantitative and mixed research theses, researchers who are going to conduct studies especially on this field, need to benefit from the knowledge and experiences of people specialized in this field on how to select samples and improve knowledge of research methods.
- When conducting these studies, it is necessary to use random sampling methods and choose sample groups on K12 level so that one can obtain more generalizable results. In this respect, the results obtained at the K12 level could be compared with the results of the research conducted with teacher candidates and adults.
- When considering the lack of studies, it can be said that future research should be planned in supported by system records and other quantitative measuring tools in which advanced statistics are used.

Finally, taking into consideration the results and recommendations of this research when performing thesis studies on distance education in future, will contribute to more qualified studies in terms of methodology. The theses in this study were examined only demographically and methodologically. In addition, the master' and doctoral theses examined in the research are limited to the national thesis database of CoHE and were open to access between 2005 and 2014. In future studies, distance education theses can be investigated in terms of subjects, variables, key words, findings, results and suggestions.

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