Trends in Distance Education: A Content Analysis of Master's Thesis

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ABSTRACT
The present study aimed at presenting the results of content analysis on Master's Theses carried out in the field of distance education at higher education level in Turkey between 1986 and 2015. A total of 285 Master's Theses were examined to determine the key words, academic disciplines, research areas, theoretical frameworks, research designs and models, statistical analyses, data collection tools, participants, instructional design models, variables/research focus and related institutions. Therefore, the study is considered to be important since it tried to reveal the research trends of distance education in Turkey and to determine the related research trends.

Keywords: Content analysis, Master's Thesis, research trends, Turkish Distance Education

INTRODUCTION
Since the 19th century, when the concept of distance education first appeared, there have been great changes in distance education activities parallel to the developments in technology. It is seen that this change has occurred especially in the tools used in distance education, the technological sub-structure, learners' demographical backgrounds and in their expectations.

It is a well-known fact that a number of dissertations and Master's Theses have been conducted in this field especially at universities. As a result of these studies, an academically valuable product occurs. A student authoring a Master's Thesis has a supervisor, and the process of authoring the thesis is conducted under the guidance of the supervisor. At the end of the authoring process, the thesis is evaluated by a committee considering its originality, importance, contribution to the literature and methodology for the purpose of deciding on whether to accept or reject the thesis. Dissertations are more serious and meticulous studies that follow the process of Master's Thesis. Consequently, these theses are important to understand the field of distance education, to determine the related problems and to follow the trends.

In order to obtain information about the current state of distance education, it could be stated that it is necessary to create a related agenda by examining the studies published in refereed journals in the field and to review the published Master's Theses and dissertations. Bozkurt and colleagues (2015a) conducted a study examining dissertations within the context of Turkish distance education. However, in literature, there is no research carried out to examine Master's Theses. Examining the Master's Theses on distance education to contribute to this field is important to provide new ideas for future studies, to understand the changes in the field and to analyze the

current related situation. In this respect, the purpose of this study was to examine the Master's Theses carried out on distance education between 1986 and 2015 with respect to certain variables and to reveal the current state of distance education. The study included the following headings: a) What are the most frequently used keywords, academic disciplines, research areas, theoretical/conceptual frameworks, research designs, research models, tests and analysis, data collection tools, participants, and variables/research interests; and b) what are the leading contributor institutions in Distance Education (DE) research in Turkey.

Review in Distance Education
Koble and Brunker (1997), in their study, examined 129 papers published in the journal of American Journal of Distance Education (AJDE) and found that quantitative studies were conducted at most and mixed studies at least. Mishra (1997) examined the studies published in the journals of AJDE, Distance Education (DE), Open Learning: The Journal of Open, Distance and e-Learning (OL), and Indian Journal of Open Learning (IJOL) between 1991-1996. The researcher reported that the most frequent method was descriptive method; the most favored data collection tool was questionnaire; England was the country where most studies were conducted; and the most common discussions were about students' viewpoints regarding distance education.

Berge and Mrozowski (2001) examined 890 papers published in AJDE, Journal of Distance Education (JDE), DE and OL between 1990-1999. The researchers used the categorization method put forward by Sherry (1996) and found that descriptive studies were most common. In addition, it was revealed that there was a significant increase in the number of descriptive studies by years and that there was no significant increase or decrease in the number of case studies, correlational studies and experimental studies by years. It was seen that most studies were carried out on the dimension of distance education design and that there was quite a little research on the area of cost and benefit. Lee, Driscoll and Nelson (2004), who examined the same journals between 1997-2002, reached 361 papers. The most frequent method used in these studies was the case study method. It was found that theoretical research topics were dominant.

In one study carried out by Zawacki-Richter (2009), the research fields related to Distance Education were classified. In the study, 26 participants from 11 countries (Australia, Brazil, Canada, China, Fiji, Germany, Ireland, New Zealand, South Africa, England and USA) were asked for their views. In line with their views, the distance education studies were grouped under three categories: Macro, Meso and Micro.

Zawacki-Richter, Bäcker and Vogt (2009) examined 695 papers published in five different journals related to distance education between 2000-2008. According to the classification put forward by Zawacki (2009), it was found that the most common research field was "interaction and communication in learning environments" and the least was "costs and advantages". In the study, it was reported that there was a positive increase in the numbers of quantitative and qualitative studies by years and that there was a decrease in the number of mixed studies.

Salar (2009) examined studies published in 15 refereed journals in Turkey between 2003-2008. In the study using the classification put forward by Berge and Mrozowski (2001), it was found that the most common research topics included selection and acceptance of technology, design issues, redefining key participant roles, strategies to increase interaction, and active learning. In addition, it was revealed that descriptive studies were more common when compared to other research types.

De Olivera Neto and Dos Santos (2010) compared 983 studies conducted in Brazil between 1987-2006 with 983 studies published in ADJE. In their study, the researchers used the categorization systems put forward by Gall, Borg, and Gall (2006) and by Lee, Driscoll and Nelson (2007). It was found that most studies in Brazil were conducted on administration while most studies in USA focused on evaluation.

Davies, Howell and Petrie (2010), in their study, examined 308 Master's Theses and dissertations conducted at universities in North America between 1998-2007. In the study using the content analysis method, it was revealed that there was a decrease in the number of studies regarding technology use. Most of the studies were carried out with the survey and case study methods, and the number of action research studies was lowest. The most frequent data collection tool used in these studies was found to be questionnaire.

Horzum, Özkaya, Demirci and Alparslan (2013) examined 35 papers published in Turkish journals in the field of educational sciences in Turkey between 2005-2011. It was found that there was an increase in the number of studies focusing on the use of web technologies and that the most common dependent variables were achievement, satisfaction and attitude. Among the data collection tools, the prominent ones included interview form, document analysis and scale.

Bozkurt and colleagues (2015b) examined 861 research articles published in the journals of AJDE, DE, The European Journal of Open, Distance and e-Learning (EURODL), JDE, The Journal of Online Learning and Technology (JOLT), OL and The International Review of Research in Open and Distributed Learning (IRRODL) between 2009-2013. The researchers reported that the qualitative research method was most frequent; the mixed method was least frequent; and questionnaire, interview and document analysis were among the most common data collection tools. Of all the qualitative studies, 76 of them used content analysis; 74 of them used thematic analysis; and five of them used discourse analysis. In qualitative studies, the case study method was the most popular. Mixed studies mostly included exploratory sequential and explanatory sequential studies. In terms of the participants, most studies were conducted with undergraduate students, postgraduate students, academicians and teachers, respectively.

Bozkurt and colleagues (2015a), in their study, examined 61 dissertations with respect to such variables as key words, academic discipline, research areas, theoretical/conceptual frameworks, research designs, research models, statistical analyses, data collection tools, participants, variables/research focus and institutions contributing to the field. The dissertations were those included in the Thesis Database of Turkish Council of Higher Education (TCHE) between 1986 and 2014. In the study, the classification method put forward by Zawacki-Richter (2009) regarding the research areas in distance education was used. According to this classification, the most favored research area was "Instructional Design" at Micro Level, which was followed by "Distance Teaching System and Institutions" at Macro Level. The least frequent research area was "Costs and Benefits" and "Management and Organizations" at Meso Level. When the studies were categorized according to academic disciplines, it was seen that "Education and Training" had the highest frequency, which was followed by "Communication Science". In the dissertations examined, it was found that there was an increase in the number of theses based on theoretical grounds especially after 2011 and that the most common theory was "Technology Acceptance Model". In relation to methodology, it was seen that quantitative studies were most common with a rate of 36%, which was followed by mixed studies with 33% and qualitative studies with 31%. In addition, the popularity of mixed studies was found to increase starting from early 2000s. It was also revealed that the dissertations were mostly based on such research methods as experimental design, case study and explanatory sequential mixed method. In quantitative studies, inferential analysis was conducted with a rate of 64%, while descriptive analysis was run with a rate of 36%. As for the qualitative studies, content analysis was applied with a rate of 63%, and thematic analysis was used with a rate of 37%. The most common data collection tools in these studies included questionnaire, interview and scale, respectively. Also, it was seen that the participants were mostly undergraduate students. As the leading contributor institutions, Anadolu University was the one that produced most dissertations in the field of distance education (40%).

METHOD
In the present study, content analysis was conducted on the Master's Theses carried out in the field of distance education in Turkey between 1986 and 2015. The theses were reached via the database of TCHE. The TCHE database is an electronic database which includes the Master's Theses and dissertations conducted and which researchers can access by taking the necessary permissions from the authorities in Turkey.
While reviewing the related literature, the following criteria were taken into account in relation to the theses:
1. They would be included in TCHE database,
2. They would be published between 1986 and 2015,
3. They would be Master's Theses,
4. There would be permission for access to the theses.
The theses were searched on the basis of the selected key words using the conjunction "OR" in three phases:
1- 315 theses were reached using the keywords of "distance education", "distance teaching" and "distance learning",
2- 31 theses were reached using the keywords of "open education", "open learning" and "open teaching", and
3- 49 theses were reached using the keywords of "online education", "online learning" and "online teaching".

In accordance with the keywords used, a total of 395 theses were reached (31 December, 2015). Among these theses, those similar to each other were determined and excluded from the scope of the present study. As a result, 365 theses were obtained. Of these 365 theses, 80 of them were not included in the study for various reasons, either. Among these reasons for the exclusion of these 80 theses was the fact that there were studies focusing on the development of distance control systems but not on distance education; there were studies which mentioned distance education in the literature review part yet which were not generally related to distance education; and the research topics in some studies were not related to distance education though these studies were conducted

with distance education students. With the exclusion of such theses from the scope of the present study, there were 285 theses left in total to be examined in this study.

In order to find answers to the research questions, content analysis was conducted, and the related theses were examined with respect to certain variables. Descriptive statistics such as percentages and frequencies in relation to the variables were examined. These statistics were then interpreted in comparison with the results reported in other similar studies.
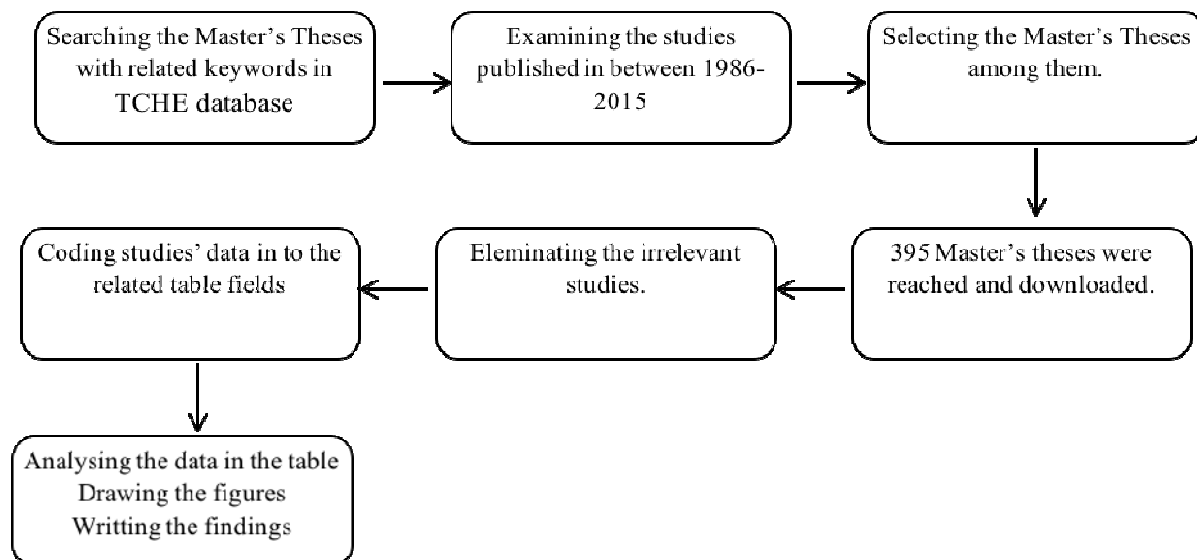

Figure 1. Diagram of thesis search process

Classification of Research Areas, Design and Model

Regarding the distance education research areas, a classification system was developed by Zawacki-Richter (2009) which was shown in Table 1. In the present study, this classification system was used, and the research categories of the theses were determined and reported meticulously. The reason for the use of such a classification system was that this system was frequently used in distance education review studies for the review of the related literature. Accordingly, the results of the present study can be easily compared with other review studies.

Table 1. Research Areas of DE (Zawacki-Richter, 2009)

Macro level: Distance education systems and theories.

1. *Access, equity, and ethics*
The democratization of access to distance education afforded by new media and by finding ways to deliver high-quality education to those who have limited resources and poor infrastructure; issues that refer to the (sustainable) provision of distance education in developing areas. What is the impact of distance education (e.g., via mobile learning) on narrowing the digital divide and what is the role of ICT (information and communication technologies) and/or OER (open educational resources) in terms of access to education?

2. *Globalization of education and cross-cultural aspects*
Aspects that refer to the global external environment and drivers, the development of the global distance education market, teaching and learning in mediated global environments, and the implications for professional development.

3. *Distance teaching systems and institutions*
Distance education delivery systems, the role of institutional partnerships in developing transnational programmes, and the impact of ICT on the convergence of conventional education and distance education institutions (hybrid or mixed-mode).

4. *Theories and models*
Theoretical frameworks for and foundations of distance education, e.g., the theoretical basis of instructional models, knowledge construction, interaction between learners, or the impact of social constructivism learning theories on distance education practice.

5. *Research methods in distance education and knowledge transfer*
Methodological considerations, the impact of distance education research and writing on practice, and the role of professional associations in improving practice. Literature reviews and works on the history of distance education are also subsumed within this area.

Messo level: Management, organization, and technology.

1. *Management and organization*
Strategies, administration, and organizational infrastructures and frameworks for the development, implementation, and sustainable delivery of distance education programmes. What is required for successful leadership in distance education? Distance education and policies relating to continuing education, lifelong learning, and the impact of online learning on institutional policies, as well as legal issues (copyright and intellectual property).

2. *Costs and benefits*
Aspects that refer to financial management, costing, pricing, and business models in distance education. Efficiency: What is the return on investment or impact of distance education programmes? What is the impact of ICT on the costing models and the scalability of distance education delivery? How can cost effective but meaningful learner support be provided?

3. *Educational technology*
New trends in educational technology for distance education (e.g., Web 2.0 applications or mobile learning) and the benefits and challenges of using OERs, media selection (e.g., synchronous vs. asynchronous media), technical infrastructure and equipment for online learning environments, and their opportunities for teaching and learning.

4.   *Innovation and change*
Issues that refer to educational innovation with new media and measures to support and facilitate change in institutions (e.g., incentive systems for faculty, aspects referring to staff workloads, promotion, and tenure).

5. *Professional development and faculty support*
Professional development and faculty support services as a prerequisite for innovation and change. What are the competencies of online teachers and how can they be developed?

6. *Learner support services*
The infrastructure for and organization of learner support systems (from information and counselling for prospective students about library services and technical support to career services and alumni networks).

7. *Quality assurance*
Issues that refer to accreditation and quality standards in distance education. The impact of quality assurance and high quality learner support on enrolments and drop-out/retention, as well as reputation and acceptance of distance education as a valid form of educational provision.

Micro level: Teaching and learning in distance education.

1. *Instructional design*
Issues that refer to the stages of the instructional design process for curriculum and course development. Special emphasis is placed on pedagogical approaches for tutoring online (scaffolding), the design of (culturally appropriate) study material, opportunities provided by new developments in educational technology for teaching and learning (e.g. Web 2.0 applications and mobile devices), as well as assessment practices in distance education.

2. *Interaction and communication in learning communities*
Closely related to instructional design considerations is course design that fosters (online) articulation, interaction, reflection, and collaboration throughout the learning and teaching process. Special areas include the development of online communities, gender differences, and cross-cultural aspects in online communication.

3. *Learner characteristics*
The aims and goals of adult learners, the socio-economic background of distance education students, their different learning styles, critical thinking dispositions, and special needs. How do students learn online (learner behavior patterns, learning styles) and what competencies are needed for distance learning (e.g., digital literacy)?

Reliability
According to the criteria determined via the theses obtained as a result of the review, a table was prepared, and each researcher analyzed the results separately and transferred them to their own tables. Following this, these tables prepared by the researchers were compared; the differences were determined; and the related theses were examined again. Inter-rater reliability of the coding was $\kappa = .820$. Altman (1990) proposes that the extent of agreement for Cohen's kappa can be qualified as poor (< 0.20), fair (0.21 to 0.40), moderate (0.41 to 0.60), good (0.61 to 0.80), and very good (0.81 to 1.00). Thus, the reliability of raters can be considered as very good. Content analysis ended arriving at a consensus on all the findings.

FINDINGS AND DISCUSSION

In this part of the study, the results were presented and interpreted in comparison with those of other studies reported in related literature.

Keywords

The keywords used in the Master's Theses were analyzed. The results were given in Table 2. When the keywords considered to be irrelevant to distance education were excluded, 11 different keywords were used 248 times. The most frequent keyword was found to be "Distance Education" with a rate of 47.1% (N=117), which was followed by the keywords of "Distance Learning" (n=51) and "E-Learning" (n=37). It was seen that the least frequent keywords used in the theses were "Distance instruction" (n=1) and "Virtual education" (n=1). These findings are similar to those reported by Horzum and colleagues (2013) and by Bozkurt and colleagues (2015).

Table 2. Keywords

Keywords	Frequency	Percentage
Distance Education	117	47.1
Distance Learning	51	20.5
E-Learning	37	14.9
Web-Based Education	10	4
Blended Learning	9	3.6
Online Learning	8	3.2
Mobile Learning	7	2.8
Web Based Learning	5	2
Open Education	2	0.8
Distance Instruction	1	0.4
Virtual Education	1	0.4
Total	248	100

Academic Discipline

In the study, it was seen that the Master's Theses belonged to 22 different disciplines which was shown in Table 3. The theses were mostly conducted in the field of Education and Training. These findings are consistent with those reported by Bozkurt and colleagues (2015a, 2015b) and by Zawacki-Richter (2014). The other disciplines that the other theses belonged to included Computer Engineering and Computer Science and Control (17.4%), Science and Technology (7.9%), Technical Education (6.3%), Electrical and Electronics Engineering (4.2%) and Business Administration (3.1%).

Table 3. Academic disciplines

Discipline*	Frequency	Percentage
Education and Training	206	54,4
Computer Engineering and Computer Science and Control	66	17,4
Science and Technology	30	7,9
Technical Education	24	6,3
Electrical and Electronics Engineering	16	4,2
Business Administration	12	3,2
Information and Records Management	3	0,8
Mechanical Engineering	3	0,8
Radio and Television	3	0,8
Statistics	2	0,5
Banking	2	0,5
Labour Economics and Industrial Relations	2	0,5

Other**	10	2,7
TOTAL	**379**	**100**

* The names of the academic disciplines originally belong to TCHE.
** The category of 'Other' includes the disciplines of Interior Design and Decoration, Anatomy, Biostatistics, Traffic, Bioengineering, Physics and Physics Engineering, Home Economics, Health Education, and Fine Arts.
*** In a single study, more than one academic discipline might have been used.

Research Areas
In this part of the study, the theses were examined and coded at three levels using the classification put forward by Zawacki-Richter (2009) (Figure 2).
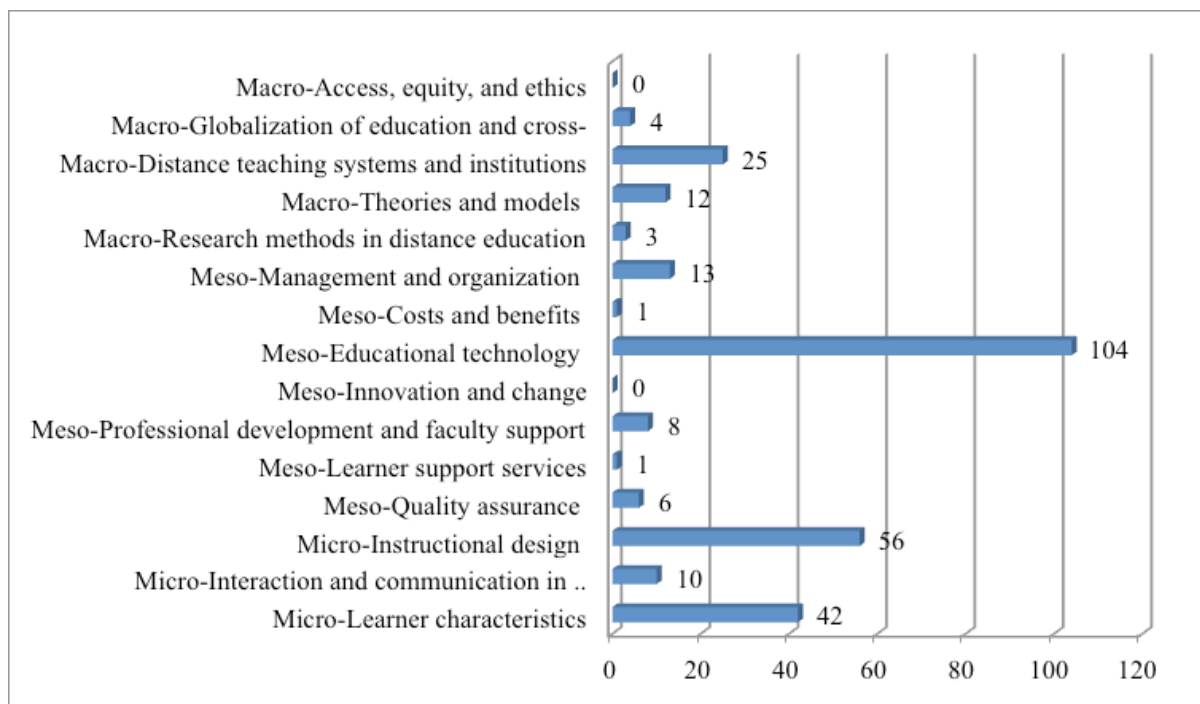

Figure 1. Research areas

As can be seen in Figure 2, among the prominent areas at meso level was "Educational Technology", which was followed by the headings of "Instructional Design" and "Learner Characteristics" at micro level. In addition, the heading of "Distance Teaching Systems and Institutions" was among the prominent ones at macro level. These four research areas were more common than the others. Bozkurt and colleagues (2015a), in their study, found that these four areas were the most popular ones. However, different from this study, Bozkurt and colleagues (2015a) reported that the most common area was Micro-Instructional Design. Depending on this result, it could be stated that the focus in doctorate theses was more on instructional design and that Master's Theses mostly focused on educational technologies. Similar to the studies conducted by Zawacki-Richter, Bäcker and Vogt (2009) and Bozkurt and colleagues (2015a, 2015b), there was no balanced distribution of the research areas revealed in this study.

Theoretical/Conceptual Framework
Among the theses examined, only nine of them were based on at least one theoretical framework. These theoretical frameworks were cognitive learning theory, Kolb's experiential learning theory, Lev Vygotsky's Social Development Theory, Transactional Distance, Media Richness Theory, System Approach and Constructivism. On the other hand, 276 theses included in the scope of the present study did not include any theory. According to Bozkurt and colleagues (2015a), approximately 30% of the dissertations were based on at least one theoretical ground, yet it was only 3% for Master's Theses. Depending on this result, it could be stated that Master's Theses did not include any theoretical framework at all.

Research Design
The research designs used in Master's Theses were examined in three categories: quantitative, qualitative and mixed. Figure 3 presents the distribution of these categories.
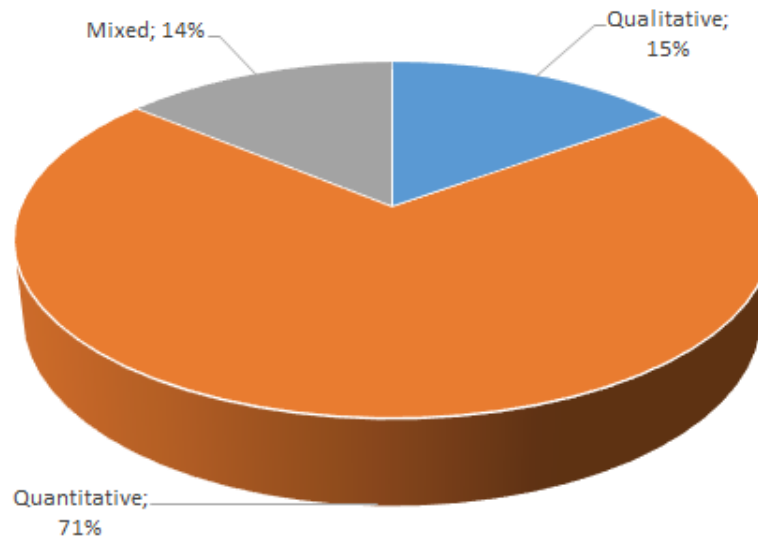
Figure 2. Research designs in Master's Thesis

As a result of the analysis of the data in the present study, it was found that of all the Master's Theses conducted in the field of distance education in Turkey between 1986 and 2015, 71% of them were carried out with the quantitative research design (N=148), 15% of them with the qualitative research design (N=31), and 14% of them were carried out with the mixed research design (N=28). These findings are supported by those reported in studies conducted by Koble and Brunker (1997), by Zawacki Richter and Prümmer, (2010) and by Bozkurt and colleagues (2015a). On the other hand, in contrast with these results, it was found that the studies carried out by Lee, Driscoll and Nelson (2004), by Hauser (2013) and by Bozkurt and colleagues (2015b) mostly included qualitative research design.

In the study, studies which included only one software, application or a system design and which did not involve any data collection except for the quantitative, qualitative and mixed research designs in the Master's Theses were gathered under the heading of Design Development. Table 4 presents the distribution of research areas by years. Different from these categories, three studies involved the use of Delphi technique.

Table 4. Research designs

Research Designs	1989	1993	1997	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Qualitative	1	-	-	-		1	-	1	3	2	1	2	3	5	5	1	4	2	**31**
Quantitative	-	1	1	1	3	3	6	4	12	15	15	8	26	16	20	6	10	1	**148**
Mixed	-	-	-	-	-	-	1	1	2	1	2	4	6	2	5	1	2	1	**28**
Develop a Design	-	-	-	2	3	1	3	6	11	8	7	13	12	4	2	4	1	1	**78**
TOTAL	**1**	**1**	**1**	**3**	**6**	**5**	**10**	**12**	**28**	**26**	**25**	**27**	**47**	**27**	**32**	**12**	**17**	**5**	**285**

According to Table 4, it could be stated that there was an increase in the number of theses especially starting from the year 2006. At the same time, there has been a decrease in the number of theses in the last three years. However, this result, as required by the publication rules for the TCHE database, could be explained with the fact that some of the authors did not want their theses to be accessed after three years. A total of 46 theses conducted in the last three years were not included in the scope of the present study since it was not officially allowed to access them. Among all the theses examined in the present study, 27'% of them (N=78) were related to design development. Most of these studies were not conducted in the field of "Education and Instruction", and they generally belonged to the dimension of engineering. Figure 4 presents the graphical representation of Table 4.
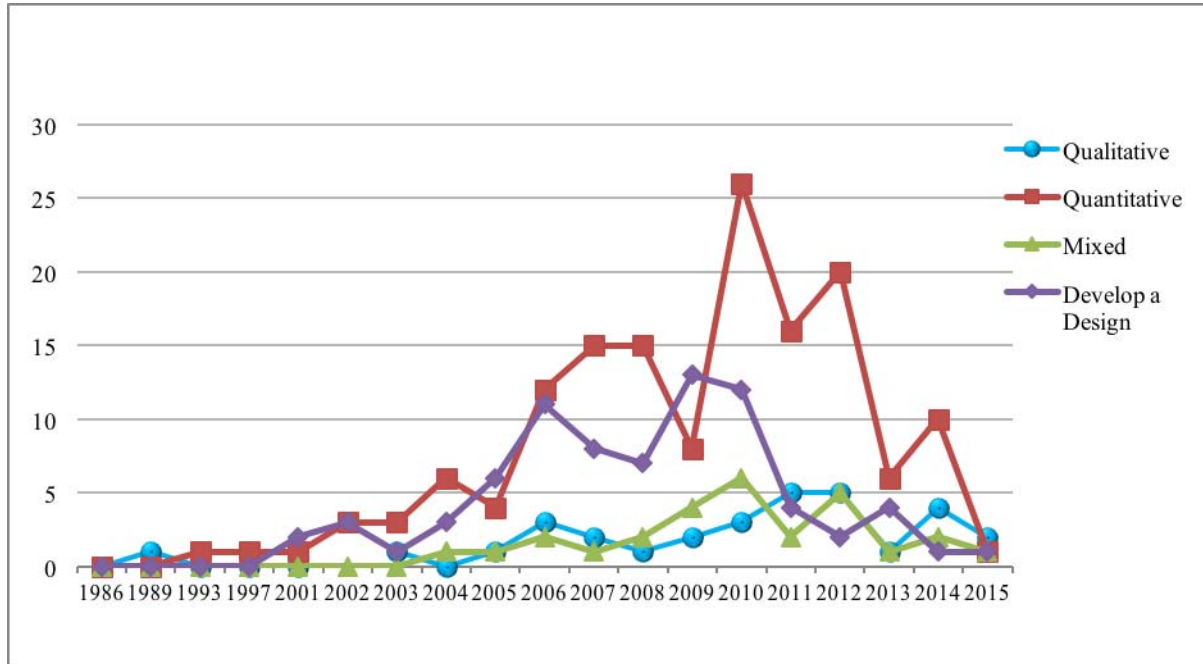
Figure 3. Distribution of research designs by years

According to Figure 4, when the distributions of the research designs were examined by years, it was seen that there was no thesis conducted between 1986 and 1988. The first thesis conducted in this field was in 1989 with a qualitative design. It was revealed that there was no thesis with qualitative design from 1989 to 2003 and that starting from 2005, qualitative studies became popular. When the research designs used in the theses were examined by years, no striking change was observed.

Research Model
Under this heading, the three research models were examined, and the related findings were compared with those reported in related literature.

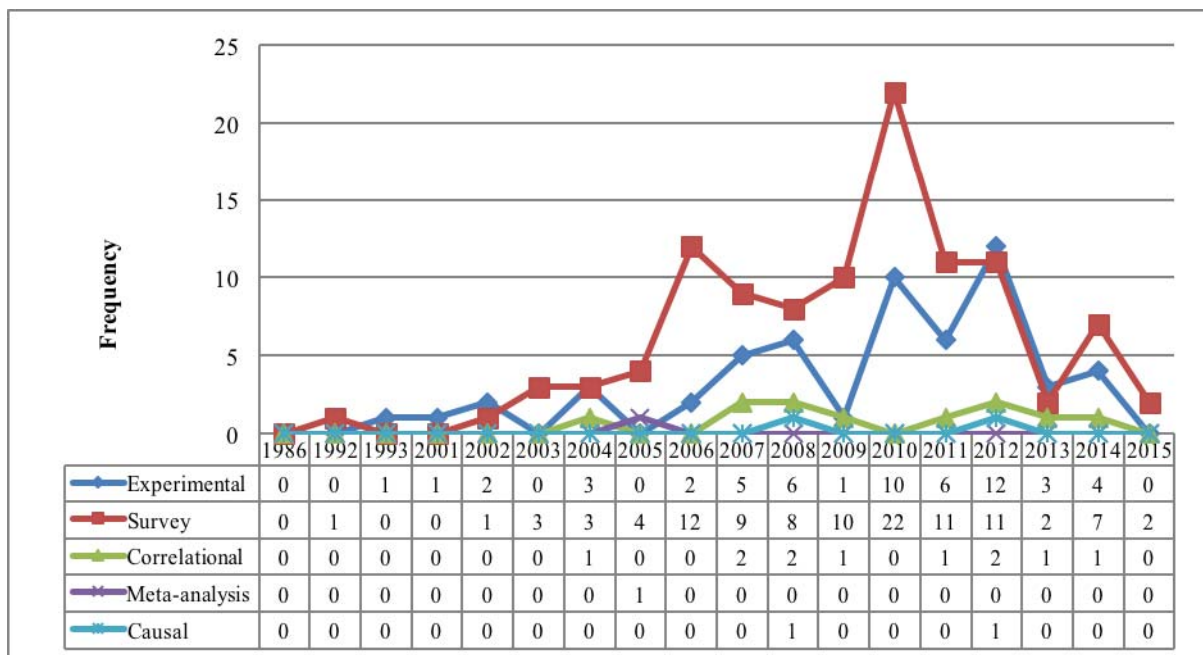|	1986	1992	1993	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Experimental	0	0	1	1	2	0	3	0	2	5	6	1	10	6	12	3	4	0
Survey	0	1	0	0	1	3	3	4	12	9	8	10	22	11	11	2	7	2
Correlational	0	0	0	0	0	0	1	0	0	2	2	1	0	1	2	1	1	0
Meta-analysis	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Causal	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0

Figure 4. Distribution of Quantitative Methods by years

Among the theses examined within the scope of the present study, it was found that the first thesis using the quantitative method was conducted in 1992. It was also seen that in the quantitative studies, the most frequent method was the survey method (N=106) and that the least frequent one was the meta-analysis method (N=1). These findings are consistent with those reported in other similar studies in related literature (Randall et al., 2010; Bozkurt et al, 2015). The number of studies using quantitative was highest (N=32) in 2010. When the table is examined, it is seen that there was a considerable increase in the number of studies using the survey and experimental models in 2010 in contrast with the remarkable decrease starting from 2013. The cause of this decrease could be said to be the fact that the authors started to prevent access to their theses in that year.

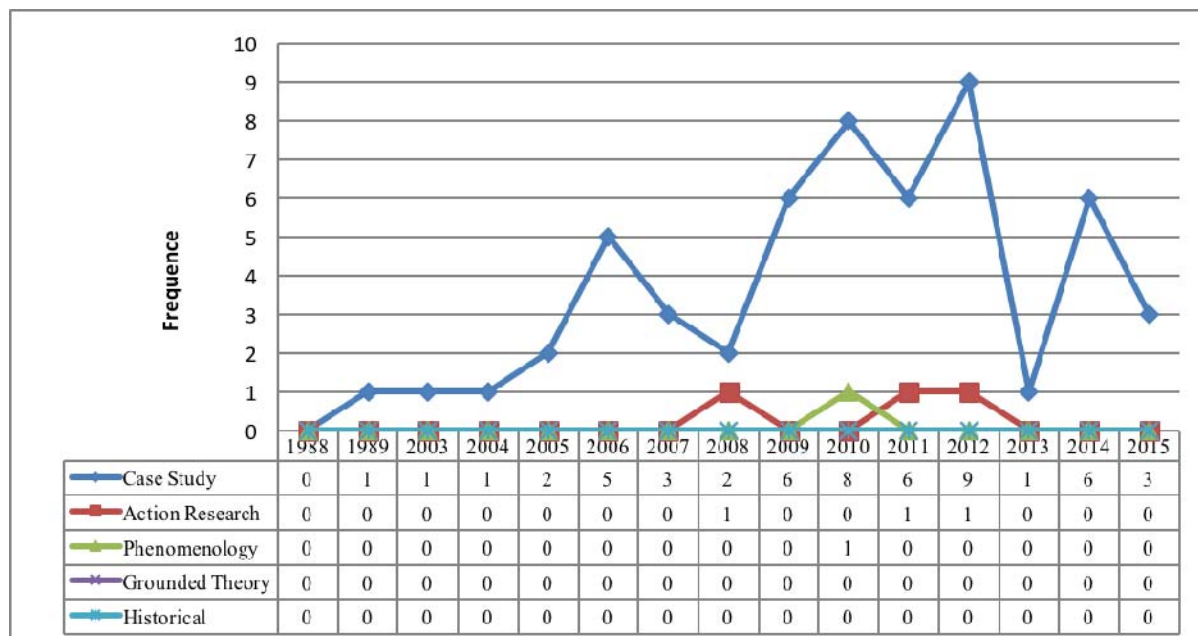|	1988	1989	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Case Study	0	1	1	1	2	5	3	2	6	8	6	9	1	6	3
Action Research	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0
Phenomenology	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Grounded Theory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Historical	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 5. Distribution of Qualitative Methods by years

Among the theses examined within the scope of this study, the first thesis using qualitative methods was conducted in 1989. It was found that in the theses using the qualitative methods, the most frequent method was case study (N=54). These findings are parallel to those reported in other similar review studies in related literature (Lee, Driscoll, & Nelson, 2004; Davies, Howell & Petrie, 2010). When the table is examined, it is seen that there was no thesis conducted with the grounded theory method and historical method, which are among qualitative methods. These findings support those of another study carried out by Bozkurt and colleagues (2015a).

When the related literature was examined, it was seen that there are several classifications in relation to mixed methods. In a common typology for mixed methods, mixed method studies include a three-dimension typology: (1) Level of mixing (partially mixed versus fully mixed, (2) Time orientation (concurrent versus sequential) and (3) emphasis of approaches (equal status versus dominant status) (Johnson & Onwuegbuzie, 2004). In this study, this classification was used for the theses conducted with mixed method.

Table 5. Distribution of Classifications of Mixed Method

Mixed Method	f	%
Level of Mixing		
Partially	15	56
Fully	12	44
Time Orientation		
Concurrent	6	22
Sequential	21	78
Emphasis of Approaches		
Equal Status	7	26
Dominant Status	20	74

According to Table 5, in the classification used, there was a balanced distribution regarding the level of mixing for the studies conducted with mixed method. When the theses were examined with respect to time orientation, it was seen that a great majority of the mixed studies were "sequential". Among these studies, there were five studies in which qualitative methods were used first, but in most of them, quantitative methods were used first. When the theses were examined with respect to emphasis of approaches, it was seen that most of the mixed theses included dominant status. Quantitative methods were more frequent in mixed studies with dominant status. In the review studies on distance education in related literature, there was no study using the mixed method with this classification.

Tests and Analysis
Table 6 presents the number and percentage analyses of the analysis techniques used in the theses examined within the scope of the present study. According to Table 6, 48% of the quantitative statistical tests included the method of descriptive statistics, and 52% of them included the method of inferential statistics. This finding is similar to the finding of another study conducted by Bozkurt and colleagues (2015b), while the researchers, in their study examining dissertations, reported a different result pointing out that inferential statistics were more frequent (Bozkurt et al., 2015a). In qualitative analyses, 68% included the content analysis technique, and 32% included the thematic analysis technique.

Table 6. Test and analysis

QUANTITATIVE Statistical Tests					
Descriptive (%48)		**Inferential (%52)**			
		Parametric (%83)		**Non-Parametric (%17)**	
Central Tendency (Mean/Median/Mode)	71	t-test	75	Chi-square	23
Relative Standing (Percentage/z-score)	135	Variance Analysis (ANOVA/MANOVA /MANCOVA)	67	Mann Whitney U	15
Variability (Variance/Standard Deviation/Range)	72	Reliability Analysis (Cronbach's Alfa)	61	Wilcoxon Test	5
Descriptive Statistics (Non Specified)	5	Correlation (Pearson)	26	Kruskal Wallis	9
		Factor Analysis (Confirmatory/Exploratory)	19		
		Regression Analysis	7		
		Structural Equation Modeling (SEM)	1		
QUALITATIVE					
Content Analysis					27 (%68)
Thematic Analysis					13 (%32)

*One study may employ more than one statistical test

When Table 6 is examined, it is seen that most of the descriptive statistics included the percentage and z-score values followed by central tendency statistics such as mean/median and mode and by variability statistics such as variance/standard deviation and range. In addition, a great majority of the inferential statistics included parametric tests. Among the parametric tests, t-test, variance analyses and reliability analyses were most frequent. The fact that the most frequent test among parametric tests applied in review studies conducted on distance education and on other similar research topics (Davies, Howell & Petrie, 2010; Bozkurt et al., 2015a) was t-test supports the related finding obtained in the present study. On the other hand, different from this study, mean score was the most frequent method of descriptive statistics used in those review studies.
When non-parametric tests were examined, it was seen that Chi-square and Mann Whitney U tests were most common. This finding is also consistent with those reported by Davies, Howell & Petrie, (2010) and by Bozkurt and colleagues (2015a) in their studies.

Data Collection Tools
Table 7 presents the number and percentage analyses regarding the data collection tools used in the theses examined within the scope of the present study. According to Table 7, the most popular data collection tools were questionnaire (41%), interview (16%), scale (14,5%) and pretest-posttest (14,5%), respectively.

Table 7. Data Collection Tools

Data Collection Tools	Frequency	Percentage
Questionnaire	127	%41
Interview	49	%16
Scale	45	%14.5
Pre-test / Post-test	45	%14.5
Observation	17	%5.4
Documents	12	%4
Electronic documents	12	%4
Focus group	3	%1
TOTAL	310	100

*One study may employ more than one data collection tools

The results revealed that use of questionnaire as a data collection tool was favored more when compared to the other data collection tools. It was seen that questionnaire was followed by interview and scale, respectively. This finding is parallel to those obtained in other related studies (Davies, Howell & Petrie, 2010; Bozkurt et al., 2015a; Bozkurt et al., 2015b). When compared with a content analysis study examining dissertations with respect to data collection tools (Bozkurt et al., 2015a), use of questionnaire at the level of Master's Degree was more frequent than it was in dissertations.

Participants
Table 8 presents the number of and percentage analyses for the groups of participants in the theses examined within the scope of this study.

Table 8. Participants

Participants	Frequency	Percentage
Undergraduate Students	77	32,6
Associate's Degree students	27	11,4
Academicians	26	11
K12-Students	23	9,7
K12-Teachers	21	8,9
Master students	10	4,2
Specialists	10	4,2
Adult Learners	8	3,4
K12-Administrators	3	1,3
Institutions	3	1,3
System/Program	3	1,3
Administrators	2	0,8
Other	27	11,4
TOTAL	237	100

*One study may employ more than one target group

According to Table 8, undergraduate students (N=77), Associate's Degree students (N=27) and academicians (N=26) were in the first three places constituting approximately 55% of all the participants. The group of participants named "Other" included engineers, religious officials, technicians, bankers, civil servants, documents and the participants about whom no information was available. The fact that undergraduate students and academicians ranked the first two in the list supports the findings reported by other studies in related literature (Bozkurt et al., 2015a; Bozkurt et al., 2015b). However, Associate's Degree students were not involved in one study examining the dissertations with content analysis (Bozkurt et al., 2015a), while they were in the second place (11,4%) in the present study, in which Master's Theses were examined.

Variables/Research Interests
Table 9 presents the theses categorized based on the dependent variables and sequenced according to their frequencies.

Table 9. Variables / research interests

Dependent Variables	Frequency	Percentage
Academic performance/success	41	26,7
Attitude	21	13,7
Effectiveness	19	12,4
Satisfaction	15	9,8
Perception	10	6,5
Motivation	5	3,2
Expectation	4	2,6
Other	38	24,7
Total	153	100

*One study may employ more than one dependent variable

According to Table 9, in 41 studies, "academic success" (26,7%) was the most frequently used dependent variable. The variable of "academic success" was followed by "attitude" in 21 studies (13,7%), "effectiveness" (12,4%), "satisfaction" (9,8%) and "perception" (6,5%). According to Table 9, the category of "Other" (24,1%) included such variables as students' views, readiness, awareness, self-efficacy, social skills and so on. It was seen in the present study that among the dependent variables determined in the theses examined, the variables of success and attitude were quite commonly used. These findings are consistent with those obtained in other studies carried out by Horzum and colleagues (2013) and by Bozkurt and colleagues (2015a, 2015b).

Leading Contributor Institutions
Table 10 presents the distribution of the institutions by years where the Master's Theses were conducted.

Table 10. Leading Contributor Institutions

Leading Contributor Institutions	1993	1997	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total	%
Gazi University	-	-	1	-	-	1	2	7	6	1	3	10	4	3	1	6	-	45	**15.5**
Anadolu University	1	-	-	2	2	1	-	4	7	3	3	4	2	4	2	1	1	38	**13.3**
Sakarya University	-	-	-	1	1	3	-	4	2	2	1	3	-	1	1	1	-	20	**7**
Fırat University	-	-	-	1	-	-	2	-	-	1	-	1	2	5	1	1	-	14	**5**
Afyon Kocatepe University	-	-	-	-	-	-	1	1	-	1	6	2	1	-	-	-	-	12	**4.2**
Marmara University	-	-	-	-	-	1	1	2	1	2	-	3	-	2	-	-	-	12	**4.2**
Hacettepe University	-	-	-	-	-	-	-	2	1	2	1	1	3	2	-	-	-	12	**4.2**
Ankara University	-	1	-	1	-	-	-	1	1	-	-	3	2	-	1	-	-	10	**3.5**
Karadeniz Technical University	-	-	-	-	-	-	1	-	-	-	1	2	3	-	2	-	9	**3.1**
Süleyman Demirel University	-	-	-	-	-	-	2	-	-	1	2	1	-	1	1	1	-	9	**3.1**
Others	-	-	2	1	2	4	3	7	8	12	11	18	11	11	5	5	4	104	**36.4**
TOTAL	1		3	6	5	10	12	28	26	25	27	47	27	32	12	17	5	285	**100**

According to Table 10, Gazi University and Anadolu University were in the first two places in terms of the total number of theses conducted in the field of distance education at universities. These two universities were

followed by Sakarya University and Fırat University. Similarly, in a study carried out by Bozkurt and colleagues (2015a), who examined dissertations, Anadolu University and Gazi University ranked the first two. However, in their study, it was seen that 40% of all the dissertations were conducted at Anadolu University. Anadolu University was obviously prominent in the field of distance education at Doctorate and Master's Degree levels. Although Anadolu University is the second biggest mega university in the world (Wikipedia, 2015) and although it has been serving in the field of distance education since 1982, it could be stated that the number of Master's Theses conducted at this university is not at the expected level. According to Table 10, it is seen that there is no private university in the top-10 list. This situation could be explained with the fact that the number of education faculties at private universities is lower than those at state universities and that private universities are new in the country.

LIMITATIONS AND STRENGTHS

Within the scope of the present study, the Thesis Database of Turkish Council of Higher Education (TCHE) was scanned, and a total of 365 related Master's Theses with access permission were reached. In addition, 121 theses which were not permitted for access and 80 theses which were not relevant to the research topic of the present study were not included in the scope of this study. In order to access the theses which were not permitted to access, the authors of these theses were contacted. However, almost no positive response was received from the authors. The fact that the theses which were not permitted by the authors for access were not included in the scope of the present study could be regarded as a limitation of the study.

The present study examined the Master's Theses conducted between 1986 and 2015 and tried to reveal the current state of distance education studies in Turkey. Also, this study is considered to be important since it is the first study to conduct content analysis on Master's Theses in the field of distance education. Therefore, the findings obtained in the study are thought to shed light on future studies.

CONCLUSION

The present study examined the research trends in Master's Theses conducted in the field of distance education in Turkey between 1986 and 2015 with respect to certain variables. The results obtained in the study revealed that the most frequent academic discipline was Education and Training, which was followed by Computer Engineering and Computer Science and Control, Science and Technology, Technical Education, Electrical and Electronics Engineering and Business Administration, respectively. In terms of research area, it was seen that certain areas were dominantly favored. Especially "Educational Technology" at meso level, "Instructional Design" and "Learner Characteristics" at micro level, and "Distance Teaching Systems and Institutions" at macro level were among the most common research areas. When the keywords used in the theses included in the scope of the study were examined, it was seen that the most frequent keyword was "Distance Education". However, in 49 theses, no keyword was used. Of all the Master's Theses, only nine of them were based on a theoretical ground. When the frequency of use of research designs was examined, it was seen that the most common research design was quantitative design and that the least common one was mixed design. When the trend in the last decade was examined, quantitative studies were favored more despite the increase in the number of qualitative studies. The number of Master's Theses conducted in the field of distance education was highest in 2010. In addition, a remarkable decrease was observed in the number of studies carried out in the last three years. The reason for this decrease could be explained with the fact that the authors of the theses did not allow access to their studies. Therefore, 46 theses conducted in the past three years were not included in the scope of the present study since they were not allowed by their authors to access.

Of all the theses examined in the study, 78 of them (27%) were design development studies. These studies were mostly conducted out of the field of Education, and most of them covered the field of engineering. Learning environments revealed in design development studies could be said to contribute to the development of distance education.

In studies conducted with quantitative methods, survey model was the most frequent, and the least one was meta-analysis model. In addition, there was a serious increase in the number of studies carried out with survey and experimental methods in 2010. In studies carried out with qualitative methods, case study was the most frequent. There was no thesis conducted with the grounded theory method and historical method. For the theses designed with mixed methods, a classification method based on a three-dimension typology was used. According to this classification, especially the studies with mixed method were favored as "sequential", and studies with quantitative methods were dominant. In the theses, generally, questionnaire was used as the data collection tool, which was followed by interview and scale. The participant group most favored included undergraduate students, who were followed by Associate's Degree students and by academicians. When the tests and analyses were examined, it was seen that the distribution of the descriptive and inferential statistics was balanced.

Percentage/z-score was the most common statistical method in descriptive statistics, and t test was the most common in inferential statistics. The number of studies conducted was highest at Gazi University. In 2010, a considerable increase was observed in the number of studies conducted in the field of distance education at Gazi University. Although Anadolu University is the biggest university in the field of distance education in Europe and the second biggest in the World in terms of the total number of registered students, it ranks the second in Turkey in terms of the total number of Master's Theses in the related field. Lastly, when the research interests in the theses were examined, it was seen that success, attitude, effectiveness and satisfaction were the most common variables used in the theses.

In the light of the findings obtained in the present study, the following implications could be drawn for future research.

- Researchers could make use of the present findings in their future studies in the field of distance education and develop a comprehensive understanding in this field.
- It was seen that quite a few Master's Theses were based on theoretical grounds. Supervisors could encourage their students to base their theses on theoretical grounds. In this way, theses based on more powerful grounds could be produced.
- Examining the theses included in the scope of the present study revealed that the participants in these theses were mostly undergraduate students. Future research could be conducted with a wider variety of participants in the field of distance education.
- It was seen that the Master's Theses were mostly conducted using quantitative designs. However, increasing the number of studies using the mixed method, which includes combined use of qualitative and quantitative designs, could help obtain more precise and generalizable results.
- It was seen that most of the studies conducted in the field of engineering were design development studies and that a system/software was designed in these theses. In design development studies, conducting analyses by gathering qualitative and quantitative data could scientifically support the design developed.

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