

Analysis of Mixed Methods Graduate Thesis Studies in Special Education Programs in Turkey

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Abstract: This research aims to analyze mixed methods graduate thesis studies completed between 2010 and 2020 in special education programs in Turkey. The literature scan has yielded 26 studies. A qualitative research method, analytical research design has been employed in this study. Research data has been obtained from documents – namely the graduate thesis studies – and analyzed through content analysis carried out following fundamental stages of mixed methods research as proposed in the literature. These stages served as themes in this study: 'Determining the research aim and research questions', 'Selecting a mixed methods research design', 'Explaining the rationale for the mixed methods approach', 'Sampling', 'Collecting the data', 'Analysing the data', 'Integrating, interpreting and reporting the data', 'Researcher competencies and roles' and 'Ethics'. The limitations observed in the methodology and reporting of the thesis studies have suggested that the quality standards of mixed methods research are not reflected on the studies. These limitations include confusion in terminology, lack of explanation as to why the method and the design have been employed, restricted validity and reliability, and lack of integration through blending quantitative and qualitative data. In summary, despite the increase in the number of mixed methods research studies in special education has contributed to the field, it is still debatable whether the philosophical perspective behind the method and its strong suits can be reflected on the studies.

Keywords: Mixed methods research, mixed methods, graduate thesis, special education, mixed methods in special education

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Introduction

Starting with quantitative research, the journey of research methods in social sciences, in time, expanded to include qualitative research as well. Currently, either quantitative or qualitative research method can separately be employed in social sciences research (Greene, 2006; Gunbayi, 2020). During the last quarter of 20th century when the clash of paradigms was at large between quantitative and qualitative research methods, mixed methods research methodology emerged as a “third methodological initiative/paradigm/movement” (Tashakkori & Teddlie, 2003) and a “third research paradigm” (Johnson & Odwuegbuzie, 2004). Early 1990s witnessed the definition of mixed methods research in sociology and management in the U.S., education and evaluation in the U.S again, and in nursing in Canada. Enjoying various definitions in the literature, mixed methods research is commonly termed as “collection, analysis, and integration of quantitative and qualitative research data either within the same study or in a series of studies to understand the research problem better” (Creswell & Plano-Clark, 2018; Johnson et al., 2007). The foundational idea behind the method asserts that using both quantitative and qualitative methods provides opportunities to produce comprehensive answers for the research problem and questions instead of employing only one of them (Creswell, 2012; Creswell & Plano-Clark, 2018; Tashokkori & Teddle, 2003). This research method, inspired by pragmatist and transformative paradigms, has become increasingly popular in the social sciences due to the growth of research studies in education (Firat et al., 2014). This led to the growth of communication and cooperation between positivist and post-positivist quantitative and interpretive qualitative researchers. During this period, quite a few distinguished studies pioneering the use of mixed methods as a different methodological approach have been completed, and mixed methods research has grown especially in applied disciplines, such as special education (Askun & Cizel, 2020; Cresswell et al., 2006; Teddlie & Tashakkori, 2015).

Debates over the labels, criteria and design adopted within mixed methods research are naturally still going on given that it is a new and improving approach as opposed to other paradigms (Corrigan & Onwuegbuzie, 2020; Cresswell & Plano-Clark, 2018). As a result of this evolution and transformation process, this method has been employed by more and more researchers in the field of social sciences (Anguera et al., 2017; Bryman, 2006; Dures et al., 2011; Greene, 2006; Morgan, 2014; Yardley & Bishop, 2015). Consequently, research endeavors examining the theoretical foundation, designs, implementation stages, and mixed methods research have accelerated. In addition, other efforts have also expanded to analyze and discuss the challenges, researcher experiences, and the aspects of the method that need improvement (Collins et al., 2006; Corr et al., 2019; Corrigan & Onwuegbuzie, 2020; Onwuegbuzie & Collins, 2017; Wachsmann et al., 2019). Commonly cited issues regarding this method include lack of a common perspective regarding the method (Salehi & Golafshani, 2010), theoretical and conceptual confusion, lack of rationales as to why the method is chosen, inability to synthesize the data sets, lack of cooperation among the researchers (Baim-Lance et al., 2020), lack of proper academic supervision/guidance, and the scarcity of good examples (Corr et al., 2019).



Recent years have also witnessed publication of other research studies utilizing various assessment criteria to investigate the projects in line with mixed methods research (Baim-Lance et al., 2020; Onwuegbuzie & Poth, 2016). The success of this method is bound to the quality standards rising on a couple of fundamental stages and principles (Corrigan and Onwuegbuzie 2020; Neupane, 2019). In Corrigan and Onwuegbuzie (2020), the need for research to clarify the quality standards is still emphasized along with the necessity to produce special manuals and guidelines about mixed methods. Accordingly, this study offers researchers a meta-framework containing the fundamental stages and the principles to be followed in each stage using a mixed methods approach. This framework serves as the theoretical foundation for the themes utilized during the analysis of the graduate thesis studies examined in this research.

According to Corrigan and Onwuegbuzie (2020), the basic stages of the mixed methods research are listed as follows: determining the research goal, choosing a design for the mixed methods research, providing rationales as to why mixed methods approach and its design has been adopted, determining the research sample, validity and reliability efforts, collecting the research data, analyzing the research data, and integrating, interpreting, and reporting the data. Precise completion of these stages is closely related with the researcher's ability to reflect their faith in the power of integrating quantitative and qualitative research methods upon their research (Corrigan & Onwuegbuzie, 2020; Johnson & Onwuegbuzie, 2004; Salehi & Golafshani, 2010).

Johnson and Christensen (2010) have listed the six basic aims of mixed methods research as: exploration, description, understanding, explanation, prediction, and influence. The first stage, determining the research goal and questions, is of major impact in terms of planning some other stages, such as providing the theoretical and conceptual foundation and determining the research sample. For instance, think about a research aiming to investigate the effect of learning disability over reading skills of primary school students. In such a research, qualitative approach might have the upper hand since the aim is to explore and understand an unknown phenomenon. Following this exploration, a researcher may design a study examining which intervention is effective in improving reading skills. In doing so, s/he may aim to predict the effect of a given intervention. In doing so, s/he may aim to predict the effect of a given intervention and determine its effectiveness. In this process, the research questions would be the guide, and thus they have to be developed following the nature of mixed methods research paradigm (Johnson & Onwuegbuzie, 2020).

Another major stage is choosing a research design based on a mixed methods approach. Literature review indicates that there is no unity in terms of grouping and labelling these designs (Cresswell & Plano-Clark, 2018): Convergent parallel design, explanatory sequential design, exploratory sequential design, embedded design, transformative design, multiphase design, convergent design. Explanation of the rationale for why the mixed methods approach and its design have been opted for is the same as the foundation of a building (Corrigan & Onwuegbuzie, 2020). Greene et al. (1989) lists five fundamental reasons to employ mixed methods research: data triangulation, complementarity, development, initiation, and expansion. Choosing this approach and

one of its designs is definitive over how the sample is designed, what data types are utilized, how the data sets are integrated, which data has the priority, and how the temporal aspects of data collection is determined (Corrigan & Onwuegbuzie, 2020; Cresswell & Plano-Clark, 2018).

Other issues to be considered by researchers include collecting data until saturation is reached, choosing appropriate analyses for the sample size, verifying the data, interpreting the data through association, and reporting through the integration of all the relevant data and analyses (Corrigan & Onwuegbuzie, 2020; Teddlie & Tashakkori, 2009). Besides, some factors about researcher can clearly facilitate the execution of the process, such as one's level of awareness regarding their competencies, acuteness to make decisions for team effort when needed, precision in defining his/her roles, and clarity in terms of ethical issues (Doyle et al., 2009; Wachsmann et al., 2019).

The History of Mixed Methods Research and Reflections in Turkey

Many mixed methods studies have been conducted across various fields (education, psychology, nursing, program evaluation, etc.) within the international literature since early 1990s. These studies played a major role in triggering the transformation of mixed methods research into a separate paradigm (Creswell & Plano Clark, 2018; Teddlie & Tashakkori, 2009). In time, mixed methods research gained popularity in social sciences because qualitative method became clearer in the minds of researchers, the advantages of collecting quantitative and qualitative data and the importance of data triangulation were acknowledged, and because studies in the field of education grew in number (Cresswell, 2012). As of 2000, mixed methods research had turned into a method adopted by many researchers in social sciences, and numerous books and studies had been published about this method (Punch, 2009; Teddlie & Tashakkori, 2009). However, theoretical discussions and practice models in the international literature still continue about utilising quantitative and qualitative methods within mixed methods research (Corrigan & Onwuegbuzie, 2020).

Though international developments about the methodological issues are closely followed in Turkey, the use of mixed methods research in social sciences is a relatively new phenomenon. The international developments that started in early 2000 also reached Turkey. Subsequently, the frequency of mixed methods research (books, graduate thesis studies, research articles, etc.) increased in social sciences, especially in the applied fields such as educational sciences, psychology, and sociology. Special education is one of the disciplines in social sciences where mixed methods research has increased (Collins et al., 2006; Corr et al., 2019).

The Relation Between Special Education and Mixed Methods Research

Special education is a dynamic discipline that requires collaboration between different fields to maintain its national and international relevance by conducting research on various topics (Corr et al., 2019). The use of mixed methods research in the social

sciences is naturally reflected in the field of special education, and the number of mixed methods studies in special education has increased worldwide (Collins et al., 2006; Klingner & Boardman, 2011; Trainor, 2011). Rather than a current trend towards mixed methods research, the potential this approach bears for special education is cited as the reason behind such an increase (Collins et al., 2006; Klingner & Boardman, 2011).

Current debates center around especially the gap between theory and practice in special education. It is stated that specifically mixed methods research designs that include intervention have the potential to fill this gap (Klingner & Boardman, 2011; Schneider & McDonald, 2007; Vaughn et al., 2000).

Another hot debate in the literature regards whether special education is a good fit for mixed methods research. Special education is a field of study investigating issues about social and political aspects of inclusive education such as disabilities, human rights and advocacy, individual and cultural differences, and equal rights in accessing education (Collins et al., 2006; Klingner & Boardman, 2011; Trainor, 2011). It is believed that mixed methods research can facilitate discussion of cultural, ontological, and epistemological aspects of special education through a multifocal perspective (Collins et al., 2006; Klingner & Boardman, 2011; Trainor, 2011). Some assert that this method can help researchers achieve a stronger synthesis of the research problem and provide a more holistic and in-depth response to research problems about separate disability groups owing to the rich data set (Collins et al., 2006; Trainor, 2011). Additionally, each disability group is unique in terms of cultural and developmental characteristics stipulates that various research problems concerning different disability groups have a more powerful interpretation based on data collected from more than one source. These indicate that mixed methods research is compatible with the nature of special education (Collins et al., 2006; Klingner & Boardman, 2011; Trainor, 2011).

There is an ongoing discussion in the literature concerning the contributions of the method to the field of special education on one hand, and research endeavors are directed to examine different aspects of the method, on the other. The outcome of such international trends has manifested as an increase in the number of research studies conducted through mixed methods approach in the field of special education in Turkey, a majority of which primarily comprises graduate thesis studies (San, 2020). These studies generally focus on the analysis and discussion of implementation and reporting stages of the method within special education, and also on various model suggestions to utilize the method more functionally (Collins et al., 2006; Corr et al., 2019; Li et al., 2000; Odom et al., 2005).

In Turkey, presently, 11 universities offer graduate education in special education, seven of which admit students for both MA and Ph.D. degrees (Council of Higher Education, 2020). No statistical details could be obtained regarding the number and type of graduate thesis studies completed in these universities in one term. In Turkey, special education graduate programs are structured around a common curriculum specifying the courses students should complete as compulsory or elective. Research Methods/Research Methodology is one of the compulsory courses in this program. Though the content of this course spans across quantitative, qualitative and mixed

methods research, the gist of the course may vary depending on the instructor's experience, methodological perspective, and approach. On top of that, a supervisor's closeness to a certain paradigm can also be influential, even definitive, over methodological structure of a thesis study (Corrigan & Onwuegbuzie, 2020). It is noteworthy that only two universities in Turkey (Anadolu University and Hasan Kalyoncu University) offer a separate course, named as "mixed methods research in special education."

Examination of thesis studies completed in special education graduate programs in Turkey has unmasked that the use of mixed methods in graduate thesis studies started as of 2010 (Karaaslan, 2010). There has been an increase in such studies since 2015 (see Figure 3). As stated previously, the literature emphasizes that mixed methods research is compatible with the nature of special education, which is an applied discipline (Collins et al., 2006; Klingner & Boardman, 2011; Trainor, 2011). In time, it is predicted that mixed methods research will play a more significant role in graduate thesis studies within special education. There will be a considerable upward trend in the number of studies employing this method. However, national research is still in its infancy in terms of research efforts describing mixed methods research in special education and analysing paradigm-specific characteristics, stages, and implementation alternatives of this method (San, 2020). Thus, it may be concluded that special education research through mixed methods is a new trend in Turkey, and that comprehensive discussions about this method has not become prevalent yet.

Based on the reasons as mentioned earlier, it is of crucial significance to provide an in-depth analysis for the contents of special education graduate thesis studies conducted via mixed methods in Turkey, and in doing so, to reach plausible interpretations as to the quality of these studies. Such a research effort is expected to contribute to the field by depicting the current outlook of special education graduate thesis studies completed through mixed methods and the challenges experienced during the thesis process, by providing a steady perspective for specialists and researchers, and by improving the methodological discussions with relevant research data. In addition, it is also foreseen that the relevance and place of mixed methods within the field of special education will be embraced by larger groups of people and this method will be employed more often in special education. Therefore, the present study is also significant for its potential to steer current special education research.

Research Aim

This study aims to analyse the mixed methods graduate thesis studies conducted between 2010 and 2020 in special education programs in Turkey through the themes determined in line with the literature. Accordingly, answers have been sought for two main research questions:

1. What are the general descriptive features of mixed methods graduate thesis studies conducted in special education programs?

2. What characteristics of mixed methods research can be traced in graduate thesis studies conducted in special education programs?

Method

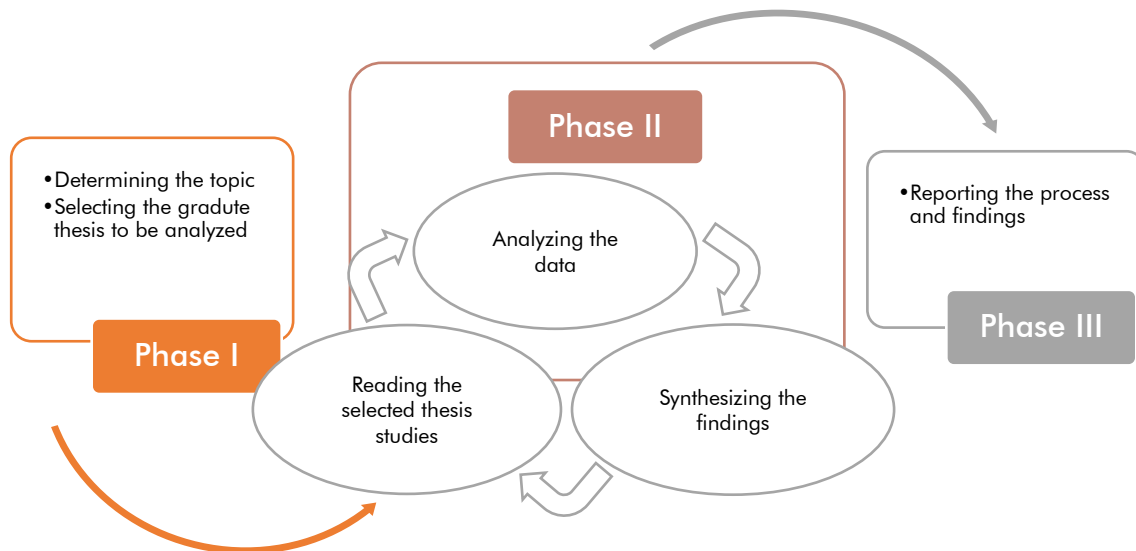
This study was based on a theoretical and analytical approach to determine and analyze a current situation (Neel, 1981). Hence, this is a qualitative research. Accordingly, content analysis has been employed to reach an exploratory analysis, and document analysis – a qualitative data collection tool – has been utilized. Document analysis refers to the scrutiny of written or visual materials informative about the phenomenon at hand (Bowen, 2009; Yildirim & Simsek, 2013). All materials providing information about a research topic are classified as documents, including books, articles, statistics, theses, and pictures (Baloglu, 2009; Balci, 2013). The documents in the present study are thesis studies. In short, the nature of this study is compatible with document analysis as the data collection technique, with content analysis as the data analysis technique, and with theoretical and analytical approach as the research design.

Research Process

This study was conducted in three phases, all of which are shown in Figure 1 and explained in more detail in the following sections.

Figure 1.

Phases of the Research Process



Data Sources and Data Collection

Data sources consist of mixed methods graduate thesis studies completed between 2010 and 2020 in special education programs in Turkey. The reason why 2010 was specified

as the start of scanning is that the first special education mixed methods thesis study was published in 2010 (Karaaslan, 2010). At the end of the review of the relevant literature, a total of 26 thesis studies were identified. During data collection, a three-step scanning process was employed.

In the first step, the thesis studies were scanned within the archives of the National Thesis Center of the Council of Higher Education. In the second step, e-archives were scanned at the libraries of the universities that have a special education department in Turkey. Lastly, a screening on the indices was run, and the traces in the reference parts of the thesis studies were followed manually. The review process was guided by relevant keywords and their combinations, including "mixed methods research, mixed methods research, mixed methods research, mixed methods research, Special Education, Special Needs, Developmental Disability, Disabled, Intellectual Disability, Mental Retardation, Autism, Autism Spectrum Disorder, Pervasive Developmental Disorder, Hearing Impairment, Hard of Hearing, Visually Impaired, Visual Disability, Physically Challenged, Physical Disability, Additional Disabilities, Multiple Disabilities, Multiple Impairments, The Gifted, and Talented."

Data Analysis and Interpretation

Data analysis was completed through content analysis approach. This approach pursues identifying concepts and relations that account for the research data. Content analysis is used to define the data and find out the truth that might be hidden in the data. The essential procedure in content analysis is to sort research data under concepts and themes to be determined based on the similarity amongst the data, then to interpret them via their relations (Glesne, 2010; Yildirim & Simsek, 2013).

The fundamental stages to plan and execute mixed methods research served as the reference to determine the themes adopted during content analysis (Corrigan & Onwuegbuzie, 2020). The rationale behind this is that these steps and the guidelines in them are considered quality indicators of mixed methods research. Indeed, these steps draw a meta-framework that can describe the previously completed studies, help interpret the quality of these studies, and direct future research endeavors. The stages were displayed in Figure 2.

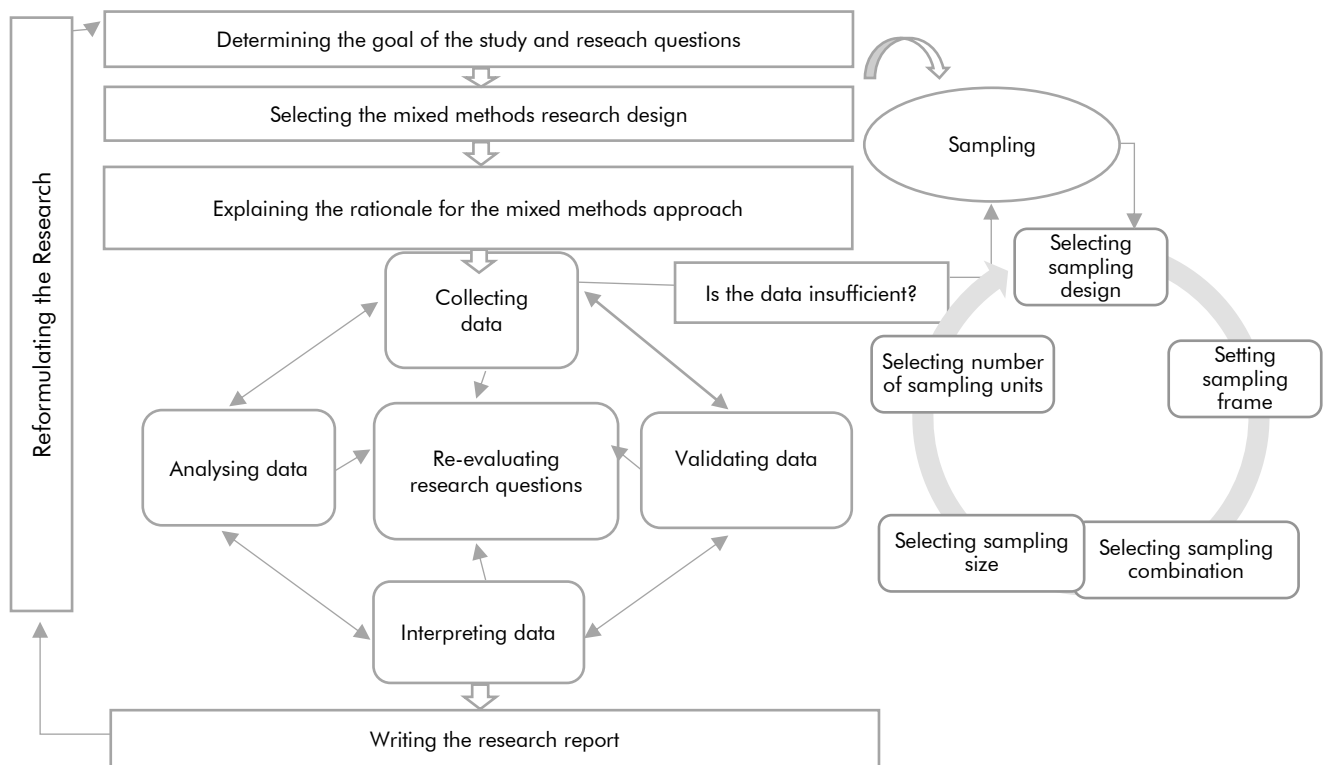
Figure 2 shows that some of the stages within mixed methods research are intricately completed cyclically. Besides, researcher roles and ethical issues are the other major components to be considered during the research process (Cresswell, 2012; Corrigan & Onwuegbuzie, 2020). The themes employed during the analysis of the thesis studies in this research were determined following Figure 2. In doing so, some of the stages in Figure 2 were combined, and researcher competence, researcher roles, and ethical issues were added as the other themes in the current study. During the analysis, the researchers initially examined the thesis studies separately in terms of the fundamental stages of the mixed methods research. Then they got together and negotiated over the themes until consensus was achieved. After consulting with a field expert experienced in

mixed methods research, the identified themes were finalised. The 9 themes employed in this research are as follows:

1. Determining the research goal and research questions
2. Selecting the mixed methods research design
3. Explaining the rationale for the mixed methods approach
4. Sampling
5. Collecting the data
6. Analyzing the data
7. Integrating, verifying, interpreting and reporting the data
8. Researcher competence and roles
9. Ethics

Figure 2.

The Fundamental Stages of Mixed Methods Research (Meta-Framework)



Source: Adapted from Corrigan & Onwuegbuzie, 2020.

Once the themes were identified, the thesis were examined in light of these themes. A data sheet was developed for this analysis, recording details and examples consistent with the themes. All the thesis studies obtained during the research process were first read and coded by the researchers independently. Two researchers (second and third authors), separately, worked on all the thesis studies. In comparison, two other

researchers (first author and another field expert), independently, examined 13 thesis studies (half of the thesis studies), and all data were recorded on the data sheet in line with the themes. Reliability efforts included online meetings where the codes written on the data sheet for each thesis study were compared and contrasted. The researchers freely explained their own evaluations regarding the codes on which they did not agree, and discussions were run until one side of the disagreement was convinced and consensus was achieved.

Researcher Competence

The first author has 7-year experience conducting mixed methods research and supervising graduate thesis studies. On the other hand, the second and third authors have completed their Ph.D. dissertations via mixed methods research and have partaken in numerous projects designed following this method.

Findings and Interpretations

This section presents and interprets the research data obtained via an analysis of mixed methods graduate thesis studies conducted within special education programs in Turkey. In compliance with research questions, the thesis studies were first examined in terms of general descriptive features and the requirements of mixed methods research. The number of the thesis studies is clearly noted within the findings part, and *n* is used as the abbreviation for 'number.'

General Descriptive Features of the Thesis Studies

The distribution of graduate thesis studies across universities and programs is depicted in Table 1.

Table 1.

The Distribution of Graduate Thesis Studies across Universities and Programs (n = 26)

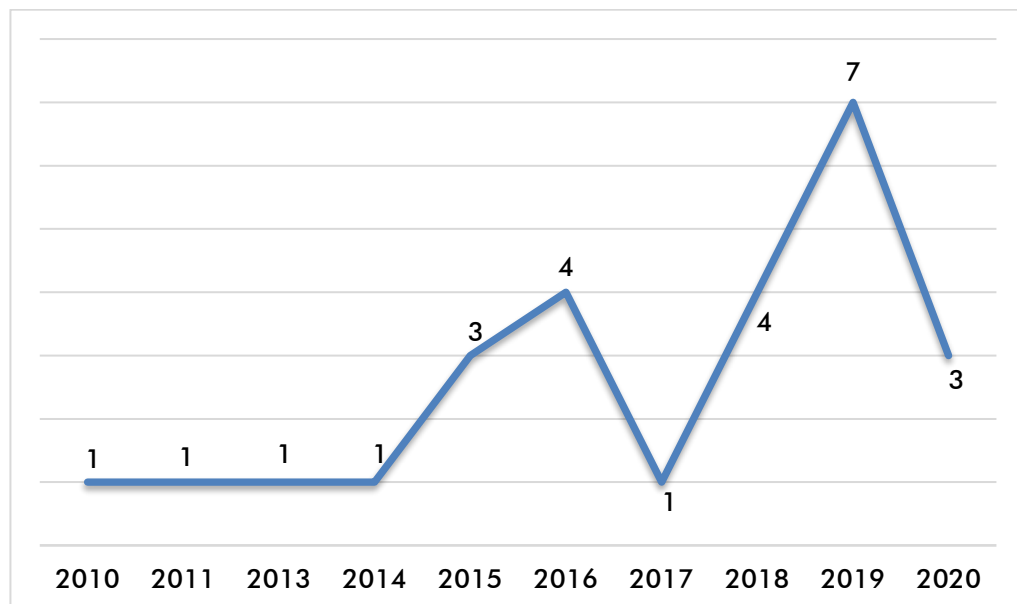
Category	n	%
University		
Anadolu	13	50
Necmettin Erbakan	6	23
Ankara	2	8
Gazi	2	8
Hasan Kalyoncu	1	4
Bolu Abant İzzet Baysal	1	4
Dokuz Eylül	1	4
Graduate Program		
Doctoral	15	58
Master's	11	42

The thesis studies completed in special education programs are scattered across many universities. However, it is noteworthy that the majority of the studies have been completed at Anadolu University and Necmettin Erbakan University. Figure 3 displays the distribution of these thesis studies across years.

Figure 3 shows that mixed methods research in the field of special education in Turkey dates back to 2010, that for some time there has been either no mixed methods study (2012) or only one mixed methods study per year, and that the number of studies has recently increased significantly. Thus, it is possible to conclude that there is a growing interest for this method within special education, which is consistent with many studies promoting mixed methods research in the literature. Furthermore, a significant number of the thesis studies are Ph.D. dissertations ($n: 15$).

Figure 3.

The Distribution of Graduate Thesis Studies across Years



Mixed Methods Research Features in the Thesis Studies

Mixed methods research qualities of the graduate thesis studies were examined and analyzed in line with the fundamental stages of mixed methods research as outlined in the relevant literature. Following sections present the data obtained for each theme in detail.

Theme 1. Determining the research goal and research questions

Remarkably, more than half of the thesis studies within the scope of the current research ($n: 17$) are designed to determine the effectiveness of either a newly developed program/practice or another one already in use. In other words, intervention studies

outnumber the others. In intervention studies, the effectiveness of a program either developed or adapted by the researcher is investigated over the individual with special needs, her/his family, teachers, or various other stakeholders. In these studies, interventions are designed and conducted for different components, such as *parent-child interaction* (Karaaslan, 2010; Toper-Korkmaz, 2015; Tomris, 2019), *social skills* (Kaya, 2011; Sani-Bozkurt, 2016; Icyuz, 2019), and *problem behaviors* (Kahveci, 2015; Melekoglu, 2017); in other studies under examination, parental needs (Bayrakli, 2016; Cankuvvet, 2015; Sahin, 2019) and teachers' professional competence (Bilgic, 2018; Karaca, 2018; Deniz, 2019; Celik, 2019; Eker, 2020; Bural, 2020) are chosen as the focus. Additionally, another noteworthy finding points out that 9 of the thesis studies directly regard inclusive education (Bayrakli, 2016; Bilgic, 2018; Celik, 2019; Icyuz, 2016; Karaca, 2018; Karahan, 2019; Melekoglu, 2017; Yildirim-Haciibrahimoglu, 2013; Yilmaz, 2014).

In almost half of these thesis studies (8), first a needs analysis was carried out to explore and describe the current condition, and then the effectiveness of intervention was investigated following the implementation of a program formulated following needs analysis (Bayrakli, 2016; Bural, 2020; Cankuvvet, 2015; Celik, 2019; Deniz, 2019; Eker, 2020; Karaca, 2018; Sahin, 2019). For instance, Cankuvvet (2015) describes this process in her study as follows:

In the first phase of the study, parents' needs were determined through qualitative data collection techniques. The need for information as unearthed via qualitative data collection techniques was investigated in a larger sample by utilizing a quantitative data collection tool developed following the qualitative data. In the second phase, the effectiveness of the program designed based on the needs determined in the first phase was assessed and evaluated by using quantitative data collection techniques.

There is a need for various programs to address different disability groups and individual needs in special education (Heward, 2009). Therefore, the high number of thesis studies oriented to determine the effectiveness of a program or practice through intervention is expected, yet it is striking that those studies aspiring to devise a program based on needs are dramatically few in number. Besides, nine of the thesis studies examined in this research are structured along the goals of exploration and description, a mere outline of a current condition. The dominant research paradigm alternates in these studies based on the condition to be explored and described. While the qualitative aspect is dominant in three thesis studies (Karahan, 2019; Ozdemir, 2016; Yildirim-Haciibrahimoglu, 2013), the qualitative dimension outweighs the quantitative one in one study (Icyuz, 2016). Within the remaining five studies, both quantitative and qualitative paradigms bear equal significance (Anil, 2019; Erkaya, 2018; Kilic, 2020; Tunalı, 2018; Yilmaz, 2014). This finding can be attributed to the closeness of the researcher to one of the research paradigms during determining the research goal and research questions, and to the extent how far s/he can reflect her/his belief in the power of integrating quantitative and qualitative research methods (Cresswell, 2012; Corrigan & Onwuegbuzie, 2020).

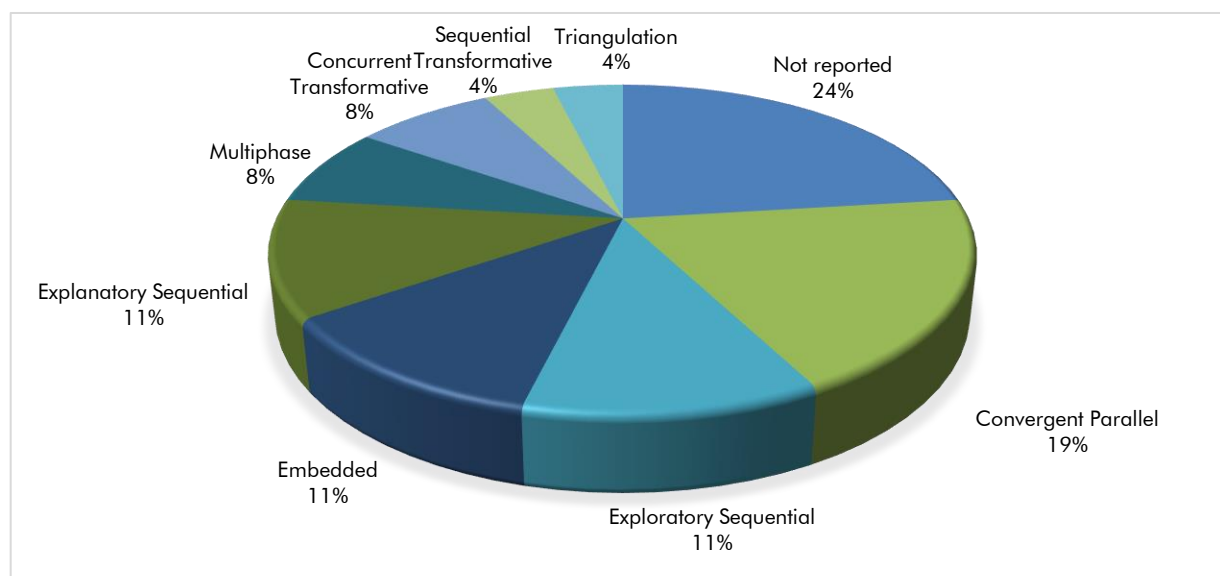
In all of the thesis studies, there is no ambiguity or need for more clarification with respect to the explanation of the research goal and research questions. The clarity of the research goal and research questions is definitive over planning some stages, such as establishing theoretical and conceptual background and selecting the sample. In some studies (e.g. Sahin, 2019), quantitative and qualitative research questions are presented separately. In others (e.g. Erkaya, 2018) more comprehensive questions were formulated to integrate both quantitative and qualitative research methods, which is more consistent with the nature of mixed methods research. The example below illustrates a research question that entails collecting both quantitative and qualitative data:

The aim of this study is to identify the communication problems that hearing-impaired preschool and primary school children experience in their social environment and to explore the problems they encounter in their social environment outside home and school, from the perspective of their mothers and the solutions and coping strategies their mothers have developed for these problems. In line with the overall aim, answers to the following research question were sought: In what contexts do children with hearing impairment have problems communicating with others." (Erkaya, 2018).

Theme 2. Selecting the mixed methods research design

A closer analysis of the designs employed in the thesis studies reveal that no mixed methods research design is explicitly named in some of them ($n: 6$). Three of these six thesis studies were completed in 2015 or earlier (Karaaslan, 2010; Kaya, 2011; Kahveci, 2015), and the other three were supervised by the same person (Karaca, 2018; Deniz, 2019; Bural, 2020). The fact that resources about the mixed methods research paradigm were limited before 2015 and that this method was in its infancy as a new paradigm at that time may be the reason why the research design was not explained in the three studies mentioned above. Likewise, lack of experience, knowledge and direction on part of the supervisor may have led to limitations in the other three studies.

In contrast, theses completed after 2015 used a variety of research designs with reference to a variety of sources, reflecting the significant increase in the number of sources on mixed methods research in recent years and confusion regarding the terminology used in different sources. Analysis of multiple sources in the literature shows that there is no uniformity in the translation of designs and the same design may have different names in different sources (San, 2020). All the research designs used in the studies of the dissertation are directly included in this research. Accordingly, mixed methods research designs detected in the thesis studies can be listed as follows in order of frequency: Convergent Parallel Design ($n: 5$), Exploratory Sequential Design ($n: 3$), Explanatory Sequential Design ($n: 3$), Embedded Design ($n: 3$), Multiphase Design ($n: 2$), Concurrent Transformative Design ($n: 2$), Sequential Transformative Design ($n: 1$), and Triangulation Design ($n: 1$) (see Graphic 1).

Graphic 1.*Mixed Methods Research Designs in Graduate Thesis Studies*

A scrutiny of the quantitative and qualitative aspects of the thesis studies yield that pretest-posttest control group ($n: 7$) and experimental designs without a control group ($n: 5$) are the most frequently utilized designs, followed by survey model ($n: 6$), single subject experimental design ($n: 2$), mixed factorial design ($n: 1$), and design-based research ($n: 1$). Though there is no reference to any design regarding the quantitative aspect in some studies, some others employed more than one design (e.g., survey model + pretest-posttest experimental design with a control group, etc.) (Icyuz, 2019). Besides, only two studies include information concerning the research design adopted for the qualitative aspect, and both selected the phenomenological design (Karahana, 2019; Sahin, 2019). These findings suggest that, due to the nature of special education, quasi-experimental designs generally predominate for the quantitative dimension in dissertations and that, for the qualitative aspect of their studies, researchers primarily prefer research designs that are conducive to understanding and exploring participants' experiences, perspectives, and worldviews regarding a phenomenon or process. Now that the mixed methods research has been recognized as a distinct paradigm, the researchers should refrain from considering the designs of other research methods and pursue employing a clear mixed methods design (Cresswell, 2012). On the contrary, the fact that "mixed methods research design" is not mentioned at all in some studies, and rather the names of quantitative and qualitative designs are referred to can be taken as a sign indicating that this paradigm has not been internalized yet.

Theme 3. Explaining the rationale for the mixed methods approach

A majority of the thesis studies explain why mixed methods research and design are employed within a theoretical framework through reference to the literature ($n: 21$). On

the other hand, some thesis studies present no relevant explanation or reference to any resources ($n: 5$). In some of these studies, the qualitative data are reported only for social validity and classified as mixed methods research (e.g. Karaaslan, 2010). The following excerpt is embedded into the methodology chapter of the thesis study by Karaaslan (2010): "In this research, pretest-posttest control group design was employed. In addition, this study also reflects the characteristics of mixed-method where both qualitative and quantitative data are analyzed." This could be linked to the fact that access to resources about mixed methods research was limited when this study was completed. Furthermore, the studies that can hardly be classified as mixed methods research because they only collect data on social validity should be interpreted as reflecting that the philosophical and theoretical background of mixed methods research was not clear to the researchers at the time. The literature reports that mixed methods research is not a simple combination of qualitative and quantitative methods, but rather a detailed integration of the strengths of each method (Cresswell, 2012; Teddlie & Tashakkori, 2009).

Concerning the research goal, the thesis studies revolve around data triangulation, complementarity, development, and expansion. For instance, Tomris (2019) states the following as an explanation to why mixed methods research is employed in her study:

The reason why a mixed methods approach was used in this study is because of "triangulation", "complementarity" and "extension". In this study, data triangulation was chosen to examine the similarity between research data collected using different methods and to determine if two types of data support each other... "Complementarity" refers to the need to identify the contradiction between quantitative and qualitative data, if any, and to provide an in-depth and rich analysis by collecting data from different angles; "expansion", on the other hand, means actually expanding the boundaries of the study with separate research methods to analyze separate phenomena and to improve the reliability and validity of the research findings (Creswell & Plano Clark, 2018, p. 103).

Cankuvet (2015) states the following to explain that she opted for mixed methods research to develop her findings through data triangulation: "Concerning data triangulation, the research data has been collected via focus group and semi-structured interviews." Also, Icyuz (2019), who reports that complementarity is the reason for using mixed methods research, provides the following explanation: "...because it provides a means to answer the research questions more comprehensively... the research data were first collected using quantitative instruments and then supplemented with details from qualitative data distilled from drama sessions."

Theme 4. Sampling

Determining the research sample is a more complicated process in mixed methods research than in other paradigms because there are several components to consider, such as timing (simultaneous or sequential data collection), priority and importance (dominance or equality of the qualitative and/or quantitative aspect), and the relationship between designs (parallel, embedded, or multilevel) (Corrigan & Onwuegbuzie, 2020). In eight of the thesis studies within the scope of this research,

quantitative aspect has the priority and, accordingly, quantitative data were first gathered from the participants, and then qualitative data were obtained from the same or a smaller sample (Bilgic, 2018; Kahveci, 2015; Karaaslan, 2010; Karaca, 2018; Karahan, 2019; Kaya, 2011; Ozdemir, 2016; Yildirim-Haciibrahimoglu, 2013). In seven of the thesis studies, qualitative aspect is more dominant than the quantitative one. Apart from one of them (Bayrakli, 2016), generally separate samples were selected to collect quantitative and qualitative research data (Bural, 2020; Cankuvvet, 2015; Deniz, 2019; Eker, 2020; Icyuz, 2019; Sahin, 2019).

In eleven of the thesis studies, the research data were obtained from the selected samples concurrently (Anil, 2018; Celik, 2019; Erkaya, 2018; Icyuz, 2019; Kilic, 2020; Melekoglu, 2017; Sani-Bozkurt, 2016; Toper-Korkmaz, 2015; Tomris, 2019; Tunali, 2018; Yilmaz, 2014). All these studies are structured around concurrent data collection designs, such as convergent parallel design (Anil, 2018; Melekoglu, 2017; Toper-Korkmaz, 2015; Yilmaz, 2014), concurrent transformative design (Erkaya, 2018; Kilic, 2020), triangulation design (Tomris, 2019), and embedded design (Celik, 2019). These findings suggest a consistency between sampling and design regarding the timing and priority aspects.

The highest and lowest numbers of participants within the samples range from 10 to 210 for scales, 4 to 43 for semi-structured interviews, and 30 to 43 for focus group interviews. It is noteworthy that the numbers of participants in the thesis studies with an experimental design for the quantitative aspect do not meet the adequate number of participants suggested for experimental research. The numbers of interviewees for the qualitative aspect are generally compatible with what is proposed in the literature. This particular finding indicates that participants in the dissertation studies, conducted using the mixed methods research paradigm, were selected through purposive sampling due to the nature of special education and in accordance with the relevant literature, and that their findings cannot be generalized to the whole and should be interpreted within research limitations.

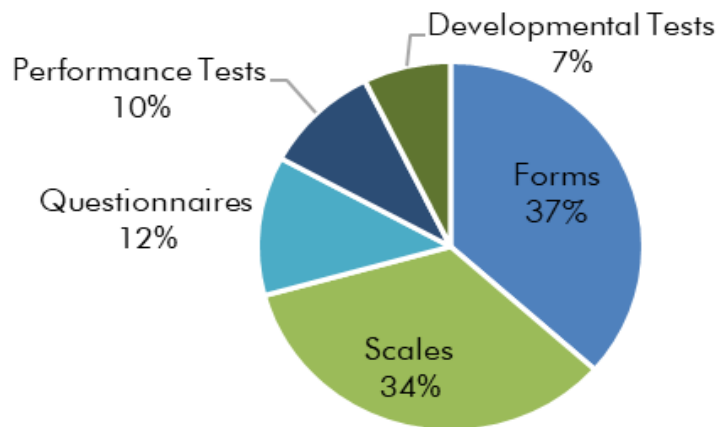
The distribution of participant profiles across the thesis studies is as follows: teachers (n : 12); families (n : 11), children with special needs between 6 and 18 years of age (n : 6), young children with special needs between 0 and 6 years of age (n : 5), adults with special needs (n : 2), typically developing children (n : 2), and administrators (n : 2). As for the disability groups in the thesis studies, autism spectrum disorder is the most frequent one (n : 6) followed by hearing impairment (n : 5), intellectual disability (n : 4), the gifted (n : 2), visual impairment (n : 1), and learning disability (n : 1).

Theme 5. Collecting the data

Data collection procedures in most of the thesis studies (n : 16) are of two separate folds for quantitative and qualitative aspects. These studies provide detailed information about both quantitative and qualitative data collection tools. A brief depiction of both quantitative and qualitative data collection tools employed in the thesis studies is presented in Graph 2 and 3, respectively.

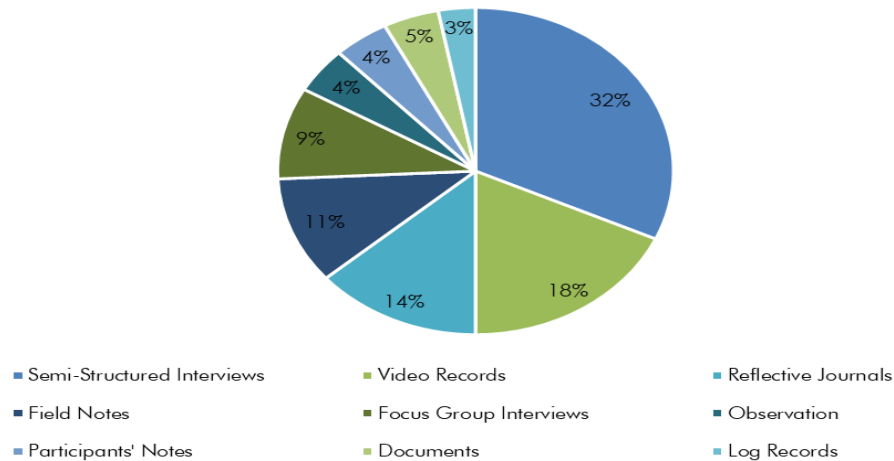
Graph 2.

Quantitative Data Collection Tools in the Thesis Studies



Graph 3.

Qualitative Data Collection Techniques in the Thesis Studies



A closer examination of Graph 2 and 3 shows that different quantitative and qualitative data collection techniques are utilized in the thesis studies and that forms and scales are dominant quantitative tools while semi-structured interview is the most frequent qualitative data collection procedure.

In data collection section, validity-reliability efforts in the graduate thesis studies were also taken into account. Validity and reliability of mixed methods research have to be established for both quantitative and qualitative paradigms through in-depth data obtained for each method (Onwuegbuzie & Leech, 2009). Especially 16 thesis studies completed within the recent years include information about the validity and reliability efforts under separate sections for quantitative and qualitative aspects, but 4 thesis studies provide details about the validity and reliability of either quantitative or qualitative

research data (Eker, 2020; Kahveci, 2015; Karahan, 2019; Kaya, 2011). Moreover, 6 of the thesis studies do not present any information as to the validity and reliability of the research (Anıl, 2019; Bural, 2020; Deniz, 2019; Karaca, 2018; Icyuz, 2018; Tunalı, 2018). Quantitative measures often include inter-observer and procedural reliability, while qualitative measures primarily include data triangulation, peer evaluation, expert evaluation, and participant endorsement. Lack of detailed explanation about the validity and reliability efforts in almost half of the thesis studies could be taken as a sign for the problems experienced during planning and implementing the main stages of the methodology.

Theme 6. Analyzing the data

Data collection in mixed methods research entails running the qualitative data through qualitative analysis and the quantitative data through quantitative analysis (Cresswell & Plano-Clark, 2018). All the thesis studies investigated in the current research comply with this rule of thumb. Statistical techniques are used for quantitative analysis of groups, and graphical analysis is followed in two thesis studies conducted via single subject research model. Mostly descriptive, content, and inductive analysis procedures are chosen for the qualitative aspect of the studies. In some of the thesis studies, though, more than one technique (e.g., descriptive analysis + content analysis) is utilized concurrently (e.g., Sahin, 2019).

Theme 7. Integrating, interpreting, and reporting the data

Reporting is regarded as a significant stage or a component within mixed methods research (Gorard & Taylor, 2004). Reporting component of the thesis studies examined in this research is evaluated in terms of two dimensions: terminology and organization.

Firstly, there is a notable inconsistency in the terminology observed in the thesis studies. Although the most commonly used term is mixed methods, there are some other terms in the studies such as blended design, mixed design, mixed research model, mixed method, mixed model, mixed approach, mixed method model, mixed research design, mixed methods research, and mixed methods research. This inconsistency points to a contradiction of terms about mixed methods research across the national literature, which could be attributed to the fact that mixed methods research is a newer and still developing paradigm as opposed to the others.

As stated above, the second dimension of reporting stage regards the organization of thesis studies. Despite several discrepancies in manuals of various institutes, all the thesis studies comply with APA format and present information under introduction, method, findings, and discussions chapters (APA, 2015). For any research effort to be considered as an example of mixed methods research study, data collection tools of the two methods should be employed in a way that supports each other, and the collected data should be presented via a comprehensive integration (Creswell & Plano-Clark, 2018; Leech & Onwuegbuzie, 2009). On the contrary, in 10 studies the qualitative and quantitative

results are reported with the help of a synthesis, in 16 others without synthesis. This finding highlights that the perspective behind mixed methods research is not adequately addressed in the reporting phase of the dissertation studies examined. For instance, Erkaya (2018) emphasizes the integration of quantitative and qualitative results within the findings section and states:

...when presenting the findings, those obtained as a result of qualitative and quantitative analyses were integrated in order to better understand the interaction areas mentioned by the families... 21 participants noted that their children do communicate with the elderly in the family and with other relatives. Mother A6 said the following about this ... Analysis of CISBA shows that the elderly in the family and the relatives consist of 78.9% of people (n=71) with whom the children communicate outside the school and home environment...

Theme 8. Researcher competence and roles

During the planning stage of mixed methods research, it is critical to collaborate with experts knowledgeable about quantitative and qualitative methods (Corrigan & Obwuegbuzie, 2020; Onwuegbuzie & Poth, 2016; Wachsmann et al., 2019). The researcher her/himself is an essential part of the research; therefore, they should reflect their perspectives about the research paradigms and their knowledge about quantitative and qualitative methods, should include information about his experiences and roles, the problems encountered during the process and the corresponding solutions in the research report (Corrigan & Obwuegbuzie, 2020; Wachsmann et al., 2019). In this sense, 20 of the thesis in this research do not provide information on any of these points. Only five of the dissertation studies provide a limited amount of information about the researcher's competence in quantitative and qualitative methods. Only one of the recently completed studies informs the reader about the role of the researcher, her/his knowledge of the method, the problems encountered during the work process and the corresponding solutions. Following is an excerpt from Celik (2019) about researcher roles:

In line with the reported information, the researcher – who developed the data collection tools and led the data collection procedure, and who is a practitioner and an observer – is experienced in practicing and monitoring early childhood special education services and in naturalistic teaching strategies both abroad and in Turkey. Additionally, s/he had the opportunity to enrich her/his knowledge and experience about conducting research via different methods by partaking in numerous projects and studies designed in accordance with both qualitative and quantitative methods.

Theme 9. Ethics

Ethical principles have to be followed in any scientific research endeavour. Thus, research reports should include information about the measures taken to prevent any ethical violation (Creswell, 2012). As of 2019, "Ethics Committee Approval" has been a compulsory component of any scientific research in Turkey (Official Gazette, March 9,

2019, issue: 30709). The review of thesis in this review found that all studies completed in 2019 and beyond included ethics committee approval.

The majority of the thesis studies report how ethical principles were followed by referring to relevant consents, code names to protect participants' confidentiality and detailed explanations made to the participants about the research aim. Apart from these, only a few thesis studies provide information regarding research ethics and ethical practice separately. In Celik (2019), ethical issues before the research process starts (informed consent), during data collection (situational ethics, relational ethics) and during reporting (exit ethics) are presented separately.

Discussion, Conclusion, and Suggestions

This research aims to analyze graduate thesis studies designed as mixed methods research in special education programs in Turkey. In this sense, the primary finding indicates that there is a steady increase in the number of mixed methods graduate thesis studies completed in special education programs, and this increase is especially of concern for the last couple of years. This finding is consistent with the recent development and evolution of research methods (Creswell, 2012; Cresswell & Plano-Clark, 2018; Corrigan & Onwuegbuzie, 2020; Gunbayi, 2020). The debate in the literature transcends the fact that there is a current tendency for the mixed methods, and regards the close relation between this method and the field of special education (Collins et al., 2006; Klingner & Boardman, 2011; Trainor, 2011). The gist of opinions advocating that the nature of special education is fit for mixed methods research can be summarized as follows: Special education is a vast field of research where an array of questions about social, societal, political, and inclusive education is vigorously investigated, such as disabilities, human rights and advocacy, individual and cultural diversity, and equal access to education. Literature reports that mixed methods research is conducive to negotiating and discussing the field's cultural, ontological, and epistemological aspects through multiple perspectives (Collins et al., 2006; Klingner & Boardman, 2011; Trainor, 2011). As a matter of fact, each disability group in the field bears a distinctive set of cultural and developmental characteristics, which is the very reason why a range of research problems about separate disability groups needs a stronger interpretation based on data from more than one source. Mixed methods research equips researchers with a robust synthesis of quantitative and qualitative data (Trainor, 2011). Special education is an applied discipline focusing on individuality. Thus, it is vital to explore the needs of distinct disability groups, develop interventions according to these needs, implement the interventions, and evaluate them (Corr et al., 2019; Klingner & Boardman, 2011).

The idea that there is a gap between theory and practice in special education is another contemporary issue of debate (Odom et al., 2005). Some scholars emphasize that mixed methods research with intervention-based designs promises to bridge that gap (Klingner & Boardman, 2011; Schneider & McDonald, 2007; Vaughn et al., 2000). The bulk of national mixed methods research in special education either involves an intervention or

aims to determine the effectiveness of an intervention. On the whole, these findings serve as evidence for the close relationship between special education and mixed methods research. However, the dearth of studies is notable about developing specific programs based on participants' needs. Thus, it stands debatable if the needs-driven nature of special education is totally and truly reflected in Turkish studies.

The methodological stance of future special education studies can be steered by incorporating mixed methods research paradigm into the curricula of graduate programs and by offering courses specifically about this method (Wachsmann et al., 2019). This very research unravels that there are more mixed methods thesis studies at those universities that put this perspective into practice and provide resources and expertise support. The Ph.D. program at Anadolu University, for example, offers a specific course named "mixed methods research in special education", this university assists researcher in terms of resources and expertise, and subsidizes researchers through projects. It is of notice that most graduate thesis studies are Ph.D. dissertations. As the relevant literature underpins, mixed methods research entails a teamwork rising on proper cooperation, precise chronological planning, and a lot of hours of work. (Corrigan & Onwuegbuzie, 2020; Wachsmann et al., 2019). Moreover, both the researcher's and the supervisor's methodological knowledge and experience significantly determine the path of each thesis study (Corrigan & Onwuegbuzie, 2020; Wachsmann et al., 2019). Unlike an M.A degree, Ph.D. studies span a longer period of time and call for cooperation with experts and solid support for resources. The fact that special education mixed methods research is mainly conducted at the Ph.D. level in Turkey may indicate that these essential components are considered during the planning of Ph.D. dissertations.

In mixed methods, research goal and questions lay the foundation for theoretical and conceptual framework and guide the sampling process (Cresswell, 2012; Johnson & Christensen, 2010). Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006) builds significant pillars for the fundamental stages of mixed methods research (developing research questions, sampling, etc.) (Corrigan & Onwuegbuzie, 2020). It is crucial which level of the ecological system is addressed in mixed methods research (microsystem, exosystem, mesosystem, macrosystem, chronosystem), as the generalizability of the results is tied to the level at which the participants are located (Corrigan & Onwuegbuzie, 2020). The special education graduate studies in Turkey clearly explain research goal and questions. Yet, there are still some limitations. One of them is the insufficient number of more comprehensive research questions integrating quantitative and qualitative methods. A second is the set of research objectives and questions on the microsystem, which hinders the generalizability of research results. Rooted in its nature, special education is a difficult discipline to form a homogenous group of participants, and this results in group-specific interpretations of the findings (Odom et al., 2005).

The thesis studies analyzed in this research mostly accommodate children with special needs, teachers, and families as participants. This finding can be correlated with the fact that mixed methods research is a new paradigm in special education and also with the

challenges to access stakeholders of the macrosystem (policy makers, administrators, etc.). Consequently, the research goal and sampling decisions are two intricately related and fundamental stages (Corrigan & Onwuegbuzie, 2020; Newman et al., 2003).

Selecting the mixed methods research design is another formidable stage for researchers (Creswell & Plano-Clark, 2018). Debates are currently not conclusive about design as developments continue (Creswell & Plano-Clark, 2018). The terminology's confusion adds to the difficulty in explaining mixed methods research designs. This unclarity grows with inconsistent translations of the developments about design in the international literature (San, 2020). The thesis studies analyzed in this research are also not free from such terminological confusion when presenting the research design.

Nevertheless, the Turkish terms for different designs are more clearly and consistently stated in the thesis studies published in 2015 and afterwards. This finding resonates with the increase in both national and international resources on mixed methods. Indeed, the designs employed in more recent thesis studies are described regarding many resources (San, 2020). This ambiguity in the design terminology is observed in various Turkish terms used for mixed methods research. This inconsistency can be interpreted as a sign that the translation of several labels in the international literature, such as mixed-method, mixed methods, mixed-method research, mixed methods research, into the national literature is determined by each researcher's perspective. Semantic shifts and errors in some translations can only be linked to a researcher's knowledge, experience, and perspective, not to the characteristics of the Turkish language.

Studies must provide the rationale behind selecting the mixed methods research and its designs. Yet, some of the thesis studies lack an explanation for the rationale behind their selected designs. This could be explained by the fact that some thesis studies date more back and some were supervised by the same person. In others, merely social validity data was collected, and the study was defined as mixed methods research. All these limitations can be rationalized by the novelty of the mixed methods research paradigm in special education, superficial understanding of its philosophy and aims, the competence boundaries of researchers and supervisors, and the scarcity of resources.

Furthermore, lack of manuals that would navigate researchers when conducting mixed methods research may account for such limitations (Corrigan & Onwuegbuzie, 2020; O'leary, 2004; Onwuegbuzie & Poth, 2016). However, the literature lists five fundamental reasons to conduct mixed methods research: data triangulation, complementarity, development, initiation, and expansion (Greene et al., 1989). The most frequent reasons in the thesis studies under investigation are data triangulation, complementarity, development, and expansion. It is worth noting that none of the mixed methods graduate thesis studies in Turkish special education programs was conducted for "initiation". The very reason for this finding could be the scope of this research is limited with graduate thesis studies. Since thesis studies have a deadline, it may not be plausible to design a thesis study for "initiation", which stipulates reformulation of the research question(s). Therefore, one can infer that there is a research need in Turkey to uncloak inconsistencies and contradictions in special education that lead to a reformulation of the research question(s).



The methodology is one of the most critical chapters where the foundation and background of mixed methods research is explained. Together with specifying the design and providing the rationale, it is also strongly advised to include information regarding quantitative and qualitative data collection techniques and about validity and reliability measures for each method (Onwuegbuzie & Poth, 2016; Creswell & Plano-Clark, 2018; Corrigan & Onwuegbuzie, 2020). Lack of detailed explanation about validity and reliability measures for each method is common for almost half the thesis studies. These findings indicate several problems in the method chapters of the thesis studies.

Mixed methods research is not a plain combination of quantitative and qualitative methods. Each method's data collection techniques should be employed to provide a reciprocal support. Research data should be integrated comprehensively, and this perspective should be reflected on the report (Creswell, 2012; Creswell & Plano-Clark, 2018). One of the significant findings of this research yields that quantitative and qualitative findings in the thesis studies are reported under separate titles. To put it differently, a serious portion of the thesis studies does not provide a synthesis resulting from blending the quantitative and qualitative data. Those with a proper synthesis, on the other hand, are only the recent ones. These findings may serve as strong evidence suggesting that both researchers and supervisors in the national literature have not internalized the philosophy of mixed methods research.

Contemporary literature underlines that ethical issues in mixed methods research should comprehensively be discussed in accordance with the frameworks of quantitative and qualitative paradigms (Creswell, 2012). Ethical issues and researcher's competence and roles are current issues of consideration in mixed methods research (Creswell, 2012; Wachsmann et al., 2019). As cited in the literature, a researcher's knowledge and experience about both methods and belief in the mixed methods research paradigm cast a direct influence overdirectly influences the entire research process (Neupane, 2019; Wachsmann et al., 2019). Similarly, the research process becomes more manageable if a researcher is aware of her/his competencies, knows when cooperation is needed, and clearly defines the boundaries of her/his roles (Doyle et al., 2009; Wachsmann et al., 2019). Many findings of this research are interpreted in relation to not only the supervisor's methodological competence, but also to the supervisor's methodological competence and that of the researcher. More than half of the thesis studies do not reflect either the researcher's perspective about the research paradigms or her/his experience in research methods. Conversely, almost all the thesis studies handle ethical issues superficially, with few recent exceptions where due attention is paid to ethical matters. These findings point out that mixed methods research's philosophical and theoretical foundations are not reflected in the thesis studies.

In conclusion, mixed methods research in special education is a current and developing issue. Although the number of mixed methods research projects in the field of special education has increased recently, it is noteworthy that several major problems prevail in the planning, implementation, and reporting phases. These include inadequate presentation of the theoretical and philosophical underpinnings of the method and relevant rationales in the various studies, confusion in terminology, lack of precise

explanations of quantitative and qualitative data collection techniques, validity and reliability measures, the role of the researcher, and ethical issues in the method chapter, and inadequate presentation of quantitative and qualitative data without proper integration in the reporting phase. All the problems are related with a set of basic points discussed across the international literature. These basic points include absence of manuals about all the stages of mixed methods research, methodological incompetence of researchers and supervisors, and insufficient resources (Corrigan & Onwuegbuzie, 2020; Wachsmann et al., 2019).

The present findings are limited with the mixed methods graduate thesis studies in special education programs in Turkey. Considering both the limitations and the findings, following can be suggested for future research and practice:

Suggestions for Future Research

- Studies can be designed to specify and define the nature, philosophy, and theory behind the mixed methods paradigm, emphasize its distinctive characteristics, and verify the need for this method.
- Studies can be designed to eliminate the terminological confusion, which could trigger steps to formulate a common terminology.
- Studies can be designed to explore the experience and opinions of researchers who conduct mixed methods research in Turkey, which may produce solutions for the challenges experienced in the field through detailed analyses.
- Studies can be designed with larger samples to include the stakeholders in each ecological system level, which can facilitate multi-perspective evaluation of the reflections that mixed methods research has in special education.
- Studies can be designed to generate a methodological comparison between special education and other disciplines.

Suggestions to Improve the Quality of Practice

- An interdisciplinary or transdisciplinary academic society or counselling system can be established to conduct studies about mixed methods research, which can serve as a professional support network for researchers aspiring to improve their skills in mixed methods research.
- Manuals can be highly functional to guide mixed methods researchers.
- Teamwork is invaluable and compulsory in mixed methods research. Thus, relevant units can be founded at universities to promote and support the use of this method.

- Because mixed methods research is a long-term study through cooperation, researchers who complete their Ph.D. degrees can be encouraged to employ this method.
- Courses on mixed methods research can be incorporated into graduate programs
- Platforms can be formed to publicize good practice examples or models developed through mixed methods research.

Endnote. As the authors, we hope that mixed methods research should be employed not because it is popular but because it is expected to provide better answers for research questions. Our suggestion for researchers willing to conduct research via this method is to prepare a list of quality standards for mixed methods research and check with this list before starting the process.

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Informed Consent: N/A.

Peer-review: Externally peer-reviewed.

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