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Mixed Methods Research in Special Education in Turkey: Learning from Researcher Experiences in Graduate Thesis

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Abstract

As a relatively young approach, mixed methods research (MMR) is a highly practical method to employ in special education due to its challenges and gains for the researchers. In this qualitative study, our aim is to explore the experiences and opinions of the researchers who completed their graduate thesis studies via MMR in special education in Turkey. We depended on hermeneutic (interpretive) phenomenological design and conducted focus group discussions with eight participants. Inductive thematic analysis has yielded four themes: (1) discovering the nature of MMR, (2) the reasons to opt for MMR, (3) the experience in conducting MMR, and (4) suggestions. The findings have revealed that understanding the mixed paradigm is a challenging task which requires a change in the mindset of researcher. Its strong functional features for special education have directed researchers towards MMR. However, many challenges raise the question: "to what extent do studies meet the MMR quality standards?" The limitations we observed in the theses have indicated that the quality standards are not adequately reflected. The relatively new nature of the method, researchers' lack of knowledge and experience, and insufficient support from the supervisor were the sources of the challenges according to our findings. We can say that there is also a need for studies discussing the implementation of the method in special education and for guidelines that will plot a route.

Keywords

mixed methods research (MMR), special education, graduate thesis, researcher experiences, Turkey, phenomenological study

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Mixed Methods Research in Special Education in Turkey: Learning from Researcher Experiences in Graduate Thesis

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As a relatively young approach, mixed methods research (MMR) is a highly practical method to employ in special education due to its challenges and gains for the researchers. In this qualitative study, our aim is to explore the experiences and opinions of the researchers who completed their graduate thesis studies via MMR in special education in Turkey. We depended on hermeneutic (interpretive) phenomenological design and conducted focus group discussions with eight participants. Inductive thematic analysis has yielded four themes: (1) discovering the nature of MMR, (2) the reasons to opt for MMR, (3) the experience in conducting MMR, and (4) suggestions. The findings have revealed that understanding the mixed paradigm is a challenging task which requires a change in the mindset of researcher. Its strong functional features for special education have directed researchers towards MMR. However, many challenges raise the question: “to what extent do studies meet the MMR quality standards?” The limitations we observed in the theses have indicated that the quality standards are not adequately reflected. The relatively new nature of the method, researchers’ lack of knowledge and experience, and insufficient support from the supervisor were the sources of the challenges according to our findings. We can say that there is also a need for studies discussing the implementation of the method in special education and for guidelines that will plot a route.

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Introduction

As in many countries, individuals with linguistic, ethnic, cultural, individual, and developmental differences live together in Turkey. Many students with special needs and under developmental-environmental risks in different disability groups are together in the education system (UNICEF, 2019a). Special education is still a developing field in Turkey. The prevalence of individuals with special needs among the general population is 12.3%. Although there are no current and precise statistics, it is estimated that there are approximately nine million individuals with special needs within the 80-million population. According to the data of the Ministry of National Education (MoNE, 2021) for 2020-2021, 425,000 students with special needs benefit from formal education. This number seems to be lower than the actual number of children who need special education. In the Humanitarian Situation Report published by UNICEF (2019b), it is emphasized that an average of 400 thousand children among 1.74 million refugee children are out of the school system in Turkey. This diversity and its associated problems raise different research questions and lead researchers who seek answers to those questions to employ different research paradigms.

In recent years, special education studies carried out with mixed methods research (MMR) have grown in number either in the world (Collins et al., 2006; Corr et al., 2019) or in Turkey. For Turkey's part, most of these studies are graduate thesis studies (Şan, 2020). This can be attributed to the fact that MMR entails a process with a clear time frame, resource support, and teamwork (Corrigan & Onwuegbuzie, 2020; Wachsmann et al., 2019). In a study by Doğan et al. (2022), 26 graduate theses in special education programs in Turkey conducted with MMR between 2010 and 2020 were analyzed. The study indicated that as we get closer to the present, the number of theses conducted with MMR is increasing (e.g., one study in 2010, three studies in 2015, and seven studies in 2019). On the other hand, it is hard to claim that the number of studies discussing MMR in the context of special education has reached its saturation (Şan, 2020); there is a lack of in-depth studies investigating the experiences of researchers during conducting MMR. Thus, it can be concluded that special education research through MMR perspective is a new trend in Turkey, and extensive discussions about this method have not yet become widespread. Studies in which the experiences during the process are examined are highly crucial in terms of interpreting the methodological perspectives of the researchers and revealing the problems in detail (Povee & Roberts, 2015; Secomb & Smith, 2011; Wachsmann et al., 2019). Additionally, in time, it is predicted that larger groups of researchers will understand the importance of MMR in special education and that the increase in MMR will continue (Günbayı, 2020; Şan, 2020). Revealing the experiences of researchers can enable novice researchers to benefit from these experiences and can outline a pathway for these researchers (Wachsmann et al., 2019). Such research is also important in terms of discovering the nature of MMR and its contributions to special education, exploring the relationship between mixed methods and special education, and developing functional implementation suggestions to overcome the challenges. As a result, they might shed light on methodological debates in the literature (Wachsmann et al., 2019).

In this study, we aimed to explore the experiences of researchers who completed their graduate thesis studies via MMR in the field of special education in Turkey and to determine their views about this method. The driving reasons for us to conduct this study are that MMR is a current trend in Turkey (Doğan et al., 2022) and that almost all the research is in the form of graduate thesis studies (Şan, 2020). We also expect that the method will be used more in research articles and projects in the future. We believe that analyzing the experiences of researchers who employ MMR in their graduate theses will be a good starting point for the researchers who will carry out different studies. This is the first study that explores the views and experiences of Turkish researchers about MMR planning, implementation, and reporting stages.

The Study Framework

A Bird's Eye on MMR

MMR, recognized as "the third methodological movement" or "the third research paradigm," is based on pragmatic and transformative paradigms (Johnson & Odwuegbuzie, 2004; Tashakkori & Teddlie, 2003). Some bases in the literature outline the nature of the method and lead researchers to employ MMR (Creswell, 2012; Creswell & Plano Clark, 2017). The inability to understand the context in the quantitative method and the limitation of generalization in the qualitative method are the pillars that strengthen the mixed methods paradigm (Corrigan & Onwuegbuzie, 2020; Creswell, 2012; Doyle et al., 2009). Although the quality standards are not clear yet, studies that draw a meta-framework (the stages and the basic principles in these stages, etc.) for the use of MMR are on the increase (Collins et al., 2012; Corrigan & Onwuegbuzie, 2020; Onwuegbuzie & Collins, 2007). This framework serves as

the theoretical basis for both the issues discussed by the participants in this study and for the way we handle the discussions.

One of the major factors that determine the design of a study as MMR is the determination of the research gap, purpose, and questions. Johnson and Christensen (2010) list the six main purposes of MMR as exploration, description, understanding, explanation, prediction, and influence. Both specifying the purpose and questions of research clearly and putting forth the theoretical and conceptual framework are essential in terms of planning the research stages, such as determining the sample of the study. Theoretical information regarding the rationale for adopting MMR approach and design helps identify the sampling frame, sampling boundary, and the time dimension of the data collection process (sequential or simultaneous data collection; Corrigan & Onwuegbuzie, 2020). Depending on the goal of the study, Corrigan and Onwuegbuzie (2020) advocate using Bronfenbrenner's (1979) ecological systems model as the ground for sampling in MMR. In Bronfenbrenner's model, there are levels of ecological systems (i.e., microsystem, exosystem, mesosystem, macrosystem, or chronosystem) that individually interacts in different levels. To some extent, the generalizability of the findings is related to the level of the ecological system from which the participants are selected (Corrigan & Onwuegbuzie, 2020). For example, if the researcher's goal is to have an individual impact, then a researcher would design a study at the microsystem level; on the other hand, if the goal is to create wide-range social impact, then a researcher would run a study at the exosystem level (for a comprehensive discussion on the use of Bronfenbrenner's systems model in MMR, see Onwuegbuzie & Collins, 2014). Other issues that researchers should consider 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 integration of all the relevant data and analyses (Corrigan & Onwuegbuzie, 2020; Teddlie & Tashakkori, 2009). In addition, researcher factors that clearly facilitate the execution of the process are one's level of awareness regarding his/her competences, 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 patterns, stages, aims, and principles of MMR are gradually being clarified. The method has been increasingly employed recently in social sciences (Alise & Teddlie, 2010; Bryman, 2006), especially in applied fields such as special education (Corr et al., 2019; Corrigan & Onwuegbuzie, 2020; Morgan, 2014).

The Relation of MMR with Special Education

Just as MMR has attained a wide scope of use among other research methods, special education is also becoming an area of interest and study in social sciences. The use of MMR in social sciences is naturally reflected in special education. Especially, in the recent years, the number of mixed methods special education research has increased both nationally and internationally (Collins et al., 2006; Corr et al., 2019; Günbayı, 2020; Klingner & Boardman, 2011).

Special education is an applied and dynamic discipline. It is reported that there is a gap between theory and practice in special education and that especially MMR designs that include intervention have the potential to fill this gap (Klingner & Boardman, 2011; Schneider & McDonald, 2007; Vaughn et al., 2000). In addition, it is claimed that MMR will contribute to the discussion of the sociological, ontological, and epistemological dimensions of special education from multiple perspectives (Collins et al., 2006; Corr et al., 2019). It is also suggested that with the rich data obtained via this method, more holistic and detailed answers can be found to various research problems related to students with disabilities and different learning styles (Collins et al., 2006; Klingner & Boardman, 2011; Trainor, 2011).

Some studies focusing on the relationship between MMR and special education have drawn attention to the challenges of employing MMR (Corr et al., 2019; Li et al., 2000). One of the primary challenges some researchers face during the use of mixed methods is either the change in their beliefs towards one method or the dichotomy of the two methods: qualitative and quantitative (Johnson & Onwuegbuzie, 2004). In other words, understanding the nature of MMR requires a significant change in mindset. Unless researchers change their minds in regard to this third paradigm, dependence on traditional research paradigms will continue. Another challenge is the lack of commonality in the standpoints of the researchers regarding MMR (Foss & Ellefsen, 2002; Salehi & Golafshani, 2010). Other challenges include difficulty to provide a conceptual and theoretical framework, confusion in the terminology, inability to produce rationales for choosing the method and design, limitations in validity-reliability studies, inability to integrate and blend quantitative and qualitative data, and emotional issues in establishing teamwork (Baim-Lance et al., 2020; Onwuegbuzie & Poth, 2016; Wachsmann et al., 2019). The challenges experienced by the researchers are associated with their lack of knowledge and experience in this methodology, the scarcity of solid examples in the field, and the poor quality of supervisors (Corr et al., 2019). In this sense, there is a need for guidelines and studies that investigate the experiences and views of MMR researchers in detail (Povee & Roberts, 2015; Secomb & Smith, 2011; Wachsmann et al., 2019). Such investigations will provide an in-depth perspective on the fundamental issues such as the changing and developing research paradigms in social sciences, the nature of MMR, its foundations, contributions, future, relation with disciplines such as special education, the challenges experienced within the process, and solution suggestions (Corrigan & Onwuegbuzie, 2020).

Authors' Motivation for the Study

As the first author, my journey to meet MMR started with my postgraduate education. I designed my master's thesis in accordance with experimental research method. I started my doctoral education with the question: "If I had the chance to go back, how would I have designed that study?" I participated in different projects with MMR, took a specific course called Mixed Methods Research, and did some method-related readings. I designed my Ph.D. dissertation (Çelik, 2019) as an MMR. I found comprehensive answers to my research questions, but I had a hard time analyzing the complex nature of the method, dealing with the data pile, and reporting it. I was wondering whether other researchers had similar challenges? How did they overcome the challenges, and what suggestions they would offer me? I haven't been able to find any resources on this. As the first author of this study, I hope that the novice researchers can benefit from the experiences and suggestions of other researchers through this study.

As the second author, I have been interested in epistemology and methodology since my undergraduate education in psychology. While I initially knew and practiced quantitative research better, I gradually began to learn about qualitative research, yet it took a while for me to internalize it. Currently, I am conducting methodology courses in the special education department of my university. My first encounter with MMR was rooted in the need to add the mixed methods paradigm to the courses I teach about research methods. My continuing journey to internalize the paradigm started in 2015 with an international project designed through MMR and with a doctoral dissertation that I supervised. The discussions during the graduate courses and the common problems we had with the students I supervised made me think that something should be done about this issue. I believe that internalized knowledge of paradigms and the compatible mental flexibility are key attributes for MMR researchers.

Method

We employed the qualitative approach and the hermeneutic (interpretive) phenomenology design in this research. In hermeneutic phenomenology, one has the approaches, such as using a researcher's personal experience with the aim to uncovering themes and interpreting findings, reflective writing, that recommend to the researcher to interpret the meanings found in relation to phenomena. Often these approaches suggest the analysis of texts or dialogue which include participants' views and experiences to find these meanings and allow interpretation (Edmonds & Kennedy, 2017; Sloan & Bowe, 2014). The focus is on understanding the meaning of the experience(s) by searching for themes and engaging with the data interpretively. Also, hermeneutic phenomenology prefers not to formalize an analytical method so that the context of the phenomenon itself could dictate how the data are analyzed (Langdridge, 2007). Hermeneutic phenomenology is best suited when the aim is to explore the participant's experiences and views about a phenomenon in detail and when the researchers prefer to reflect on their own experiences in the study (Edmonds & Kennedy, 2017; Langdridge, 2007). In this study, we aimed to "understand participants' common or different experiences about MMR" as a phenomenon through focus group interviews, as this was the most appropriate method to gain an in-depth and contextual understanding of the participants' experiences (Creswell & Poth, 2017; Krueger, 2000; Krueger & Casey, 2008). We have also benefited from hermeneutic phenomenology within the scope of following processes: (a) Our paradigmatic perspective on qualitative research is interpretive, (b) as researchers we had previous experience with this phenomenon, (c) we had experience in data analysis and interpretation of findings, (d) we used reflective language in the reporting process, (e) participants freely shared their experiences with each other and us and we also shared our experiences with participants in focus group interviews, and (f) we took researcher notes during the research process.

Participants

Although the number of participants suggested for focus group interviews varies, the ideal number is between six to twelve participants (Krueger, 2000; Langford et al., 2002), and the interviews can be held in two to six different groups depending on the nature of the questions (Krueger, 2000; Namey et al., 2016). Accordingly, we conducted online focus group interviews with eight participants who completed their graduate theses through MMR. Four participants formed the first focus group, and the other four formed the second focus group.

We chose the purposive sampling method to determine the participants. The main criterion was that the participants had to complete their graduate thesis in the field of special education and via MMR. In this process, we first scanned the graduate theses in the National Thesis Center affiliated with the Council of Higher Education and listed the researchers. In the second stage, we reached out to the researchers in special education departments and formed focus groups with the ones who voluntarily agreed to be interviewed. The distribution of the participants within the groups was determined according to the type of the thesis, the characteristics of the students, and their MMR experiences. By doing so, we aimed to enrich the findings with differing participant views. The profile of the participants can be seen in Table 1.

Table 1
The profile of the participants

Participants	Type of the Thesis	Participants in the Thesis	MMR Experience
Focus Group 1			
P1	Ph.D.	Developmental disability (intellectual disability, Down syndrome, autism spectrum disorder)	7 years
P2	Ph.D.	Visual impairment	5 years
P3	Ph.D.	Learning difficulty, the gifted	3 years
P4	MA	Hearing-impaired	2 years
Focus Group 2			
P5	Ph.D.	Developmental disability (intellectual disability, Down syndrome, autism spectrum disorder)	4 years
P6	Ph.D.	Autism spectrum disorder	6 years
P7	Ph.D.	The gifted	3 years
P8	MA	Hearing-impaired	2 years

Data Collection

Focus group discussions. The primary source of research data was focus group interviews since such interviews allow discussions based on reciprocal interactions thriving on different views, are suitable for expressing opinions about a variety of issues simultaneously, and lead to exploration of experiences (Krueger & Casey, 2008).

Developing interview questions. The development of interview questions was completed in three steps. The first was to draft the focus group interview questions. In the second step, the draft was sent to MMR specialists, all of whom hold a Ph.D. degree with a five-year experience in teaching graduate courses on research methods and have been supervising graduate thesis studies. In the third step, the interview questions were revised based on the specialists' feedback. Finally, five main questions and five other exploratory questions to be addressed when necessary were determined as the focus group interview questions. The main questions are listed below:

1. First of all, what is your definition of MMR? (Warm-up question)
2. What can you say about the most salient reason that directed you to adopt MMR design in your thesis/dissertation? What is the underlying process?
3. Can you please talk about your experience conducting your thesis study through mixed-method?
4. What do you think about both the national and international resources about MMR (the resources you utilized when conducting your study and the current ones)?
5. What are your suggestions for the researchers to plan and conduct studies with MMR design? What is your list of prior concerns?

Planning and conducting the interviews. Focus group interviews were held and recorded online (on Zoom) due to COVID-19 restrictions. At the beginning, the first author reached out to the participants over the phone and informed them about the online interviews. Then he conducted the online interviews by sending the meeting invitation link to the

participants on the scheduled date that had been negotiated earlier. All the interviews were executed by the first author since the second author was, at the time, the supervisor for the graduate thesis studies of the two participants. We aimed to prevent any ethical issues beforehand. Given that interviews require discussions and reciprocal exchange of opinions in order to explore any given issue in depth, the interview questions were directed to both of the focus groups in two separate sessions (the first two questions were addressed in the first session, and the remaining three questions were tabled in the second session). Focus group interviews lasted for a total of 6.5 hours (a sum of 3.5 hours for the first focus group across two sessions, and another sum of three hours for the second focus group across two sessions). The interviews were discontinued when there were no more new debatable issues or themes (data saturation) (Fusch & Ness, 2015).

Researcher notes. We constantly kept notes during data collection. We made use of these notes as points of support when negotiating and interpreting the interview findings (Glesne, 2010). Consequently, our own experience is also reflected in the present study.

Documents. We examined the contents of the graduate theses the participants had completed to cross-check if they had reflected the information they shared during the interviews in their studies. We regarded the theses as documents within the scope of this research (Bowen, 2009). We appealed to the data distilled from these documents to confirm the interview findings. The scrutiny of the theses did not only provide support for the findings but also helped us to develop a more holistic mental organization.

Participant information form. Prior to data collection, we electronically sent a Participant Information Form to all the participants. This form bears details concerning the demographic information about the participants and MMR (name and type of the thesis, name of the program, MMR experience, studies completed via this method).

Data Analysis

We chose “inductive thematic analysis” to analyze the focus group interviews (Percy et al., 2015). In the analysis phase, we followed the main steps suggested by Braun and Clarke (2008); we also added a stage we followed in the analysis to these stages. All stages of the thematic analysis in our study are given in Table 2.

Table 2

Phases of Thematic Analysis in Our Study

Phrase	Description of the process
1. Familiarising yourself with your data	Initially, all interview recordings were transcribed verbatim. Then we individually listened to the interview recordings and read and re-read the transcriptions in order to become familiar with the data.
2. Generating initial codes	We coded interesting features of the data in a systematic approach across the entire data set; we collated data relevant to each code.
3. Searching for themes	Following the coding process, we classified the participants' responses in terms of similarities to produce patterns within each interview. In this way, we collated codes into potential themes, gathered all data relevant to each potential theme, and created themes for each pattern cluster.
4. Reviewing themes	We checked whether the themes were in relation to the codes or not; thus we generated a thematic map of the analysis.
5. Defining and naming themes	We got together as the researchers and discussed the themes until consensus was established. Thus, we were conducting ongoing analysis to refine the specifics of each theme and the

	overall story that the analysis tells; we generated clear definitions and names for each theme.
6. Carrying out member checking and field experts' opinion	In the following step, we consulted field experts for their opinions and carried out member checking. At the end of this process, we reviewed the themes again and finalized the themes.
7. Producing the report	We selected vivid and compelling extract examples, then analyzed the selected extracts and related the analysis to the research question and literature, eventually producing a scholarly report of the analysis.

As for analyzing the contents of graduate theses and researcher notes, we opted for the macroanalysis method since it enables a researcher to view the research data more holistically through a wide-angle (Patton, 2014). Two researchers independently read and reviewed the contents of both graduate theses and researcher notes, and then identified the points relevant with the themes. Subsequently, we got together again and negotiated our inferences until we could settle an agreement. We utilized these inferences as supportive data when interpreting and discussing the interview findings.

Trustworthiness and Ethical Research Practice

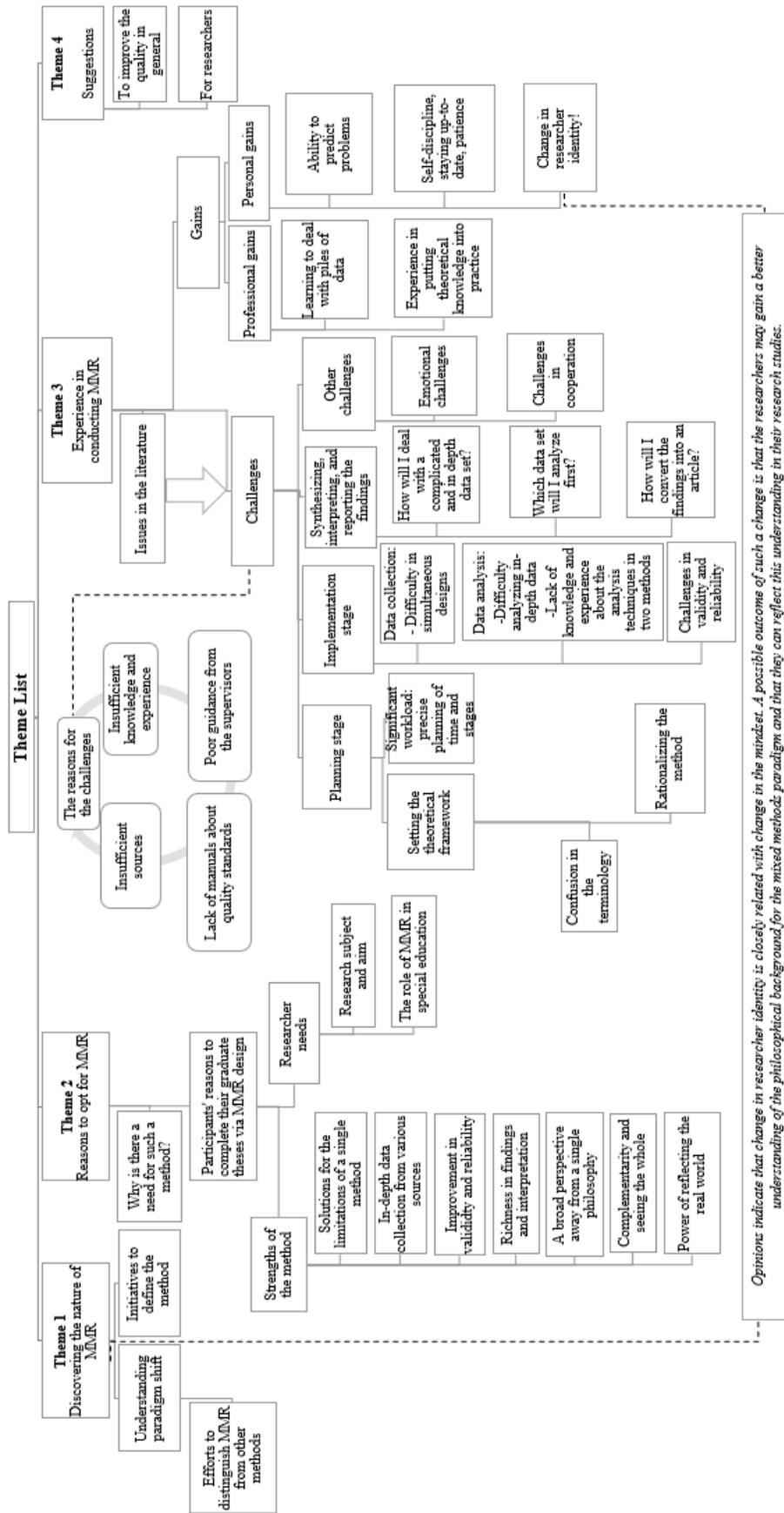
Focus group interviews were the primary source of data for the present study. During the research process, we kept researcher notes, obtained information regarding the participants through participant information forms, and examined the graduate theses of the participants. In this way, we achieved data triangulation and backed the trustworthiness of the research (Yin, 2011).

Containing a comprehensive research plan, this study was approved by Anadolu University Ethics Committee (Protocol no: 71663). Prior to the start of the research, we informed the participants about the participation conditions and the entire research process in detail. Participants' consent was secured both orally and in writing before the data collection procedure. We respected the confidentiality of the participants during data collection and assigned them code names in all analyses. Upon completion of data analysis, we shared the results with the participants and conducted member checking (Carlson, 2010; Creswell, 2012). Thus, we aimed to trustworthiness, credibility, and dependability of all the information provided by the participants.

Findings

Four main themes emerged as a result of inductive thematic analysis: (1) discovering the nature of MMR, (2) the reasons to opt for MMR, (3) the experience in conducting MMR, and (4) suggestions (see Figure 1). The findings were titled to include all the main themes. The sub-themes and most remarkable codes were presented under these themes.

Figure 1. Themes and Relevant Issues Unearthed from the Participants' Opinions



Theme 1. Discovering the Nature of MMR

Understanding paradigm shift. The interviews started with the reasons that led to the birth and development of MMR. All the participants underlined the methodological paradigm shift witnessed all around the globe. They all agreed that the restrictions in the nature of both quantitative and qualitative methods and the problems experienced when practicing either of the methods propelled researchers to quest a new method. The needs or reasons that triggered the birth of mixed research paradigms are listed as: inability to draw an in-depth analysis of the context in quantitative method, limitations in generalizing the findings in qualitative method, the need to search for more detailed answers to research problems about various disability groups in applied disciplines such as special education, and the need to conclude more valid and reliable results.

Following the discussion about the birth of the method, the participants drew several inferences regarding the past, present, and future of the method. Many of the participants noted that MMR had generally been a tool or an alternative earlier and not adopted as a complete research method. They stated the reasons for such a mindset that they had also nurtured previously as follows: MMR was a new research paradigm, there were a lot of points that needed clarification, and lack of resources for methodological debates. All these issues were at the same time the core reasons for the challenges the participants had when conducting MMR. With regards to the recent issues about the method, the participants emphasized that the philosophical framework of the method makes more sense for larger groups of people today, and there is an increasing tendency to employ the method. Furthermore, all the participants marked that the focus should not be on the superiority of a method over the other, but rather on the contributions each method can make to the others.

The participants predict that the paradigm shift will not come to an end with mixed methods approaches, and that new research approaches may be developed in the future as well. All of them underlined that MMR has a potentially bright future. The method's contemporary and functional characteristics were put forth as the main reason for such a prediction. One of the participants stated his/her predictions for the methodological changes and opinions about the increase in MMR as follows:

I think MMR will increase. There is a constant need for this method in terms of developing effective educational plans and interventions as this method sits on very strong scientific rationales. Yet, mixed methods is not the final destination. As things evolve and change, different methods will emerge. (P4)

Some of the participants noted that MMR may lose its appeal in educational sciences and special education in the future. Their explanation as to the reasons for such a prediction include the length of the research process and potential challenges in conducting MMR on children with special needs, as they have unique features and as they often fall ill.

Initiatives to define MMR. The participants tried highlighting the differences of MMR by underlining several concepts related with the characteristics and goals of MMR. Many of the participants generally defined MMR as “employing two methods in one research” or “togetherness of two methods,” and pointed out that it is a hybrid method. However, they all agreed that MMR does not simply mean combining quantitative and qualitative data. One of the participants explained this combination by saying, “Mixed methods is a combination of quantitative and qualitative data, yet it is not a simple-minded combination; indeed, it is a comprehensive integration” (P1).

A majority of the participants emphasized that the integration of two methods produced “a new composite or synthesis” with its terminology and concepts. These participants described

MMR as “a new path” or “a new window” that blends the strengths of the two methods. P6 analogized MMR as a new pair of eyeglasses: “It is like a new path or a new pair of eyeglasses that enables us to better understand a new phenomenon or concept by utilizing quantitative and qualitative methods simultaneously and by employing the strengths of the two methods.”

More than one participant defined the method as the best possible option that can reflect the reality at its best through data triangulation. P1 mentioned similarities between a sea and MMR: “The waters in a sea come from rivers or many other sources. This method is actually the best in terms of reflecting the real life via data triangulation from several sources, not only from one source.”

In their definitions, quite a few participants stated that simultaneous use of two methods complete and support the research findings. Moreover, many of them underlined several concepts such as validity, reliability, and generalizability. P7 defined the method as “a process through which quantitative data is confirmed and qualitative data is generalized, or vice-versa.” As a matter of fact, it is underscored that research findings obtained through this method can produce more reliable and effective results, and that MMR is a stronger method compared to the others.

In some of the definitions, the possibility was emphasized for a more holistic view of the problem via comprehensive and complementary data collected from various sources. One of the participants referred to the elephant metaphor to explain this:

If our eyes are blindfolded when we are supposed to make observations about an elephant standing next to us, our interpretation is limited with only where we can touch on the elephant. Yet, mixed methods means touching all the parts of the elephant and producing most relevant and real interpretations about the elephant. It means whole, completeness, accessing the entirety, accessing the whole, seeing the elephant entirely. (P2)

As we examined the contents of the participants’ graduate theses, we realized that MMR was not defined in many of the previous theses. In those including a definition, this method is simply defined as a combination of the two methods without any clarification about its characteristics and goals. On the other hand, recent theses provide a definition of MMR based on current and primary resources, and these definitions involve concepts such as data triangulation, extensiveness, and seeing the whole. Conflicting with the opinions grouped under this theme, this situation can be attributed to the increase in resources about MMR and good examples in the literature. During the interviews, the participants also said that they could update their methodological knowledge thanks to the increase in the resources.

Theme 2. Reasons to Opt for MMR

The participants first held a brief discussion concerning “Why is there a need for such a method?” In short, the outcome of the discussion pointed to the essential philosophy and characteristics of MMR as an explanation to why there was a need for this method. As a matter of fact, pragmatic and functional features of MMR such as data triangulation, practicality, complementarity, and integration of different methods were the actual rationales to opt for this method. P4 indicated the pragmatic paradigm that MMR is based on by saying “It is a pragmatism, I mean a mechanism based on pragmatism, that emerged due to a need, that incorporates strengths of quantitative and qualitative methods, and that is based on in-depth data...”

Following a broad discussion, the participants initiated a more comprehensive discussion about the relevance of this method to the field of special education. In this way, the

participants shared their opinions as an answer to a current question in the literature: “Is it functional to employ MMR in the field of special education?” Firstly, the participants noted that the nature of special education is suitable to use different methods and that some functional characteristics of MMR directed researchers in the field towards this method. These characteristics were listed as: comprehensive data collection for the variety of participants, support for validity and reliability, contact with real life via applied designs, and functional solutions to problems in practice.

According to the participants, different disability groups in special education is a significant source of diversity. Solving problems in special education requires obtaining detailed information about each disability group and generating comprehensive answers to research problems. As for many, MMR provides an opportunity to make a better sense of phenomena, concepts, and cultural contexts studied in the field of special education. Another view, also shared by some of the participants, states that collecting research data in line with a single method such as the single-subject research model often employed in special education falls short in making generalizations and interpreting the findings. According to these participants, MMR enhances the generalizability of the obtained results and reaches out to larger groups of people. One participant’s sentences summarize this opinion as follows:

Each and every child is unique in special education. Each family, each individual, or each workgroup can be drastically different... We need to collect information from various sources to be better informed about the workgroup or to better understand the reason, effect, and effect size of several things. Therefore, I think use of mixed methods in special education is significant... (P6)

Many participants pinpointed that special education is an applied discipline that strives to offer solutions for real life problems. The same participants underlined that research studies that have actual practical value in real life can be conducted via especially MMR designs that include intervention, and that the effect of the intervention can be assessed multidimensionally. One of the participants advised the researchers to ask the following questions to themselves: “Does what we practice have a meaning in real life? Do the skills and concepts we teach lead to any changes in real life for the children with special needs? If so, what kind of changes?” (P2). Other participants noted that MMR is quite functional in overcoming some problems experienced in the field of special education. Collecting data from various sources was highlighted as a critical asset to test and confirm the data to be conducive to misinterpretation and to estimate the effectiveness of the results. In addition, the flexibility MMR offers was regarded as a response to eliminate problems such as collecting additional research data.

Unanimously, all the participants once again underlined that the rationale to employ mixed methods in special education research is primarily bound to research gaps and aims. Quite a few of the participants pointed to the necessity of holding a qualitative needs analysis and to the drive to ascertain the effectiveness of a given program multidimensionally as the rationale to adopt MMR in their graduate theses. On the other hand, some participants whose graduate theses date further back reported that they had not planned their theses in line with this method initially, and that they learned about this method during the thesis process.

When we examined the contents of the participants’ theses, we uncovered several findings contradicting with most of the participants’ opinions. Those participants who emphasized the relevance of MMR to the field of special education during the interviews had not covered this point in their graduate theses. This finding may signify that the debate in Turkey over the relevance of MMR to the field of special education is still in its infancy. In addition, during the interviews, the participants listed many reasons as to why mixed methods

could be employed in research studies. Yet, the theses completed in the past do not include any explanation in terms of why mixed methods was opted, and there is no reference to a source during the description and definition of the method. Leaning onto only social validity data as the qualitative data source, one experimental thesis study included barely the following explanation in the methodology part: “This research has employed a pretest-posttest control group design. This research bears the qualities of a mixed design (mixed methods) simultaneously utilizing both qualitative and quantitative data.”

Theme 3. Experience in Conducting MMR

Issues in the literature. The participants shared their opinions regarding some fundamental issues they observed in the literature before talking about their experiences preparing their graduate theses in detail. The reason for this was the similarity between the challenges faced by the participants and other researchers. This also paved the path for the participants to question the quality of the increasing number of MMR studies.

Firstly, the confusion in the terminology to conceptualize MMR (e.g., mixed method, mixed methods, mixed research, mixed methods research, etc.) and its designs was highlighted as it is still in the early days of development. It was noted that the confusion experienced in the international literature was directly reflected in the national literature. P3 explained the confusion in the terminology across both national and international research studies as follows:

There is a serious ambiguity. Many terms such as blended research, multi-method research, and mixed methods... This ambiguity is reflected on Turkish during the translation efforts, too. For example, the word mixed methods stands in a plural meaning. We need a language unity established via clear theoretical criteria ...

In addition, the participants also mentioned the challenges they observed during the planning, implementation, and reporting stages of MMR. It was emphasized that research studies are generally planned for the microsystem (individual) of the ecological systems approach, and that they exclude the influence over the distal environments (macrosystem) of the participating groups. One participant made the following explanation for this issue that s/he correlated with insufficient support and with the individual focus inherent in the field of special education:

Yes, collecting data through one-on-one relations matters a lot since individual focus is essential in special education. Single-subject research is employed more often than necessary for the fear of not finding participants with comparable features. Still, what about the studies that encompass all the systems in the children’s environment? There is a scarcity of projects and team support to achieve this in Turkey. It sounds crazy to make use of the mixed methods!
(P1)

A majority of the participants listed the challenges they observed during the planning stage as time and tough procedures (getting ethical permits, finding a funding source, etc.) to overcome. With respect to the issues observed during the implementation stage, the list included the following: the tendency in the literature to opt for research designs and practice that could be effective in the short run, negligence of research designs promising efficiency in the implementation stage, and misuse of the selected mixed research design. Lastly, the participants also noted that qualitative and quantitative data are not reported in a blended and

reader-friendly manner within the findings section of many published studies. A participant stated that there was a similarity between the problems s/he observed during the reporting stage of articles and separation of siblings:

Someone goes and publishes the quantitative data in journal X and the qualitative ones in journal Y. Can you imagine? Why separate the siblings? Why don't you publish both in the same article? There are some serious problems in converting MMR into an article, in summarizing the findings and reporting them. Out of ignorance... (P1)

The participants shared their experiences completing their graduate thesis studies in detail. The shared experiences regarded challenges in the thesis process and MMR's contributions. P1 described what s/he went through as "The sour and sweet Thesis!"

Challenges. The challenges of MMR agreed unanimously during the interviews can be briefly listed as follows: planning, implementation, reporting, and others. Table 3 includes all the stated problems and direct quotation samples from the participants.

Table 3
Challenges during Graduate Thesis Process

Planning	Quotations
Setting the theoretical framework -in Turkish, -in the names of MMR, -for the classification of designs	It was difficult to set the theoretical framework. Confusion still prevails in terminology, such as blend research, combined research, multi-method research, mixed research. The same design has different names in different resources. (P8)
Rationalizing the method	I got lost between using this one or that one, suitable for this or that, which could also indicate that the design has improved. (P1)
Planning the time and the procedures -Thesis deadlines -Workload	I had a larger workgroup and researcher group. I spent a lot of time during data collection. It was considerably difficult to deal with piles of data. (P3)
Implementation	
Data collection -Data collection with simultaneous designs	It was difficult for me to collect both quantitative and qualitative data for my thesis with simultaneous designs (P5)
Data analysis	I wasn't on top of the analysis methods and techniques used in either of the methods! It needed knowledge and experience. (P7)
Validity and reliability	Interrater reliability is more precise and understandable in single-subject research. The other people in the team should be knowledgeable about the literature and the two methods so that qualitative themes, for example, can be formulated correctly. (P4)
Adaptation and practice of the program Cultural issues in the designs with intervention	I had a hands-on part in my mixed design. I had to visit people in their homes, make observations, and hold interviews. Are all countries culturally suitable for this? Though I'm a native citizen, some families didn't agree to this. (P1)
Synthesizing and reporting the findings	
Reporting the findings by integrating them Dealing with a complex and messy data set Determining the order of analyses	There is a motto we keep repeating: MMR is not a plain combination of findings. But how will I combine them? (P2) I was confused about which data type to analyze first during my thesis process. (P5)

Others	
Emotional challenges -Emotional wear and tear since the supervisor and the members of the thesis monitoring committee lacked knowledge and experience about mixed methods research paradigm, and since they had a conservative attitude with regards to methodology -Increased stress due to the length and workload of the process	Although a researcher with enough time decides to conduct a research through mixed methods, if s/he doesn't have a solid background, or her/his supervisor is not knowledgeable enough about this design, it will be really hard to conduct a mixed methods research. Almost impossible. (P1) If I'm asked whether I would have done the same thesis if I had the chance to go back in time, I would say 'no, I wouldn't'. I would prefer a thesis focused on a single point with a precise goal, and that is easy to distill the findings from because I was emotionally torn down, left alone with no one to consult with. I couldn't explain the logic and philosophy behind this research to anyone. (P2)
Cooperation -Teamwork with various experts	There was a need for a team to develop the programs and analyze the data set. Yet, it's not always easy to build good teams. (P8)

As we examined the contents of the participants' theses, we observed that the problems stated by the participants were easy to detect in their theses. The inconsistency in terms of terminology was easily discernible in the thesis studies. Although the most frequently used term was "mixed methods," we saw that other terms were also in use, such as "blended design," "mixed design," "mixed research model," "mixed model," "mixed approach," "mixed methods model," "mixed research design," "MMR," and "research with mixed methods." A similar confusion was also observed in the designs. Quantitative and qualitative data were reported separately, especially in older thesis studies, and validity and reliability measures were not explained in detail. On the other hand, in some of the newer studies, such issues were handled with more care and accompanied with a precise and clear explanation as to the competencies and roles of the researchers and the problems experienced during the research.

To all the participants, the underlying reasons for both the problems they experienced during their thesis studies and the ones they observed in the relevant literature could be attributed to the fact that many aspects of MMR are in need of clarification, to lack of knowledge and experience in methodology, and to the absence of well-established quality standards concerning all the stages of MMR. Another point especially emphasized by the participants in terms of the factors that had negatively influenced their entire experience during their thesis studies regarded their supervisors' insufficient knowledge and experience and poor guidance to direct the participants to the right sources. A causal result of such a problem created the feeling of making a mistake on behalf of the participants and stressed them out by constantly asking themselves: "Am I on the right track?"

According to all the participants, national resources about the use of MMR in the field of special education is still quite limited. However, they also admitted that the number of good examples with respect to thesis studies designed in line with MMR is on the rise and that such efforts set guidelines as to how findings should be reported. For many of the participants, international resources, rather than the national ones, served more as a lighthouse. Moreover, the number of studies sampling the basic principles to be followed in each stage of an MMR study is limited was also underlined by the participants. All these findings indicate that the body of both national and international literature about the methodology of MMR should expand. The following quote by P4 can be taken as a brief summary of the problem: "We had to go for the international resources since the national ones were seriously limited, such as Creswell, Plano-Clark, Johnson and Onwuegbuzie, and Hattingh... Such resources and researchers should grow in number ..."

Gains. The participants also referred to some of the gains they enjoyed from employing MMR in their thesis studies. These contributions mainly gathered around professional and

personal gains. As for those adding onto the participants' professional qualities, the most common gain was improving themselves about different methods. A majority of the participants noted that they had the opportunity to put their theoretical knowledge into practice and to learn how to integrate various data, how to report piles of data, and how to negotiate their ideas during their thesis studies. In addition, the participants underlined the need for supervisors and the members of the thesis monitoring committee to be well-informed and experienced about methodological issues. Among the personal gains stemming from employing MMR in thesis studies, as noted during the interviews, were harboring motivation for future based on the difficulties tackled during the thesis study, the ability to predict potential problems, developing self-discipline, learning to be patient and self-governed, staying up-to-date, and being a self-taught person.

Several participants stated a feeling of change in their researcher identity experienced during their thesis studies. As for these participants, the implementation stage of MMR where the knowledge and experience from the two methods critically call for a flexible personality and the ability to think analytically. In other words, the paradigm shift had to start in the minds of the researchers. One participant said the following about the transformational influence that MMR had on her/his personality and mindset:

Once I was a proponent of quantitative research, of all the numbers, formulas, statistical methods, and significance engraved in our minds... Keep your distance during data collection, don't dive into conversations, the perception not to establish bonds with people... Since I adopted different methods in my thesis study, I had to visit people in their homes during data collection. People want to build bonds with you. I realized that people abstain from sharing what they think and feel as long as they feel the distance you impose. Gradually grew a change in me, in my perception, and mindset... (P5)

Theme 4. Suggestions

The participants tabled some solution suggestions for the problems lived during conducting an MMR, which can be grouped into two as suggestions to improve the quality of MMR efforts and suggestions for novice researchers. Table 4 presents a summary of the suggestions put forth by the participants.

Table 4
Suggestions

Suggestions to improve the quality
<ul style="list-style-type: none"> • Increase the number of quality research examples conducted through various designs based on MMR • Prepare manuals for MMR stages (planning, designing, implementation, reporting) and assessment criteria • Establish counselling systems and councils • Grow the number of quality MMR trainings • Incorporate more courses about MMR into graduate curriculum • Encourage MMR studies more for Ph.D. dissertations since they require a substantial amount of time • Improve the quality of supervision for graduate students • Expand the page limit for articles in MMR journals
Suggestions for novice researchers
<ul style="list-style-type: none"> • Choose MMR only when it serves the research aim and gap • Closely monitor both national and international recent resources

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- Try to internalize the nature of the method rather than replicating other studies
 - Prepare for the research, specify the course of action: Plan the work calendar, documents for the board of ethics, consent forms, pilot study, selection of the participants, data collection procedure; clarify the function of multiple data; and scrutinize the analysis and reporting stages
 - Take courses and train yourself about qualitative and quantitative research before setting out for MMR
 - Take courses and train yourself about research ethics
 - Contact with MMR researchers and benefit from their experience
 - Choose your supervisor carefully
 - Build a good team
 - Improve your personal qualities such as being open to learning, being flexible, and developing different perspectives
-

Focus group interviews ended with remarks by the participants about the contributions of interactive interviews. One of the participants stated the following considering her/his feelings about the interviews:

I feel excited again. It feels like back-to-life from my ashes. I'm planning to read more from now on. I learned a lot from all the participants and their experiences. I learned so valuable things that it was just like school for me because we, as the mixed methods researchers, are really all alone. (P2)

Discussion

In this research, we aimed to explore the experiences of researchers who completed their graduate studies through MMR in the field of special education in Turkey and to unearth their suggestions about the method. The main axes of the research were the participants' efforts to define MMR and to make sense of the paradigm shift, their reasons to opt for MMR, their MMR experiences, and their suggestions.

Previously regarded as a way of data triangulation, MMR has become the third research paradigm in time. The development of mixed methods did not happen without some debate (Foss & Ellefsen, 2002; Salehi & Golafshani, 2010). Some researchers have been debating on the issues of incompatibility and impossibility if both quantitative and qualitative research methods are to be applied in one study (Begley, 1996; Foss & Ellefsen, 2002). Other researchers argue that data gathered using mixed methods can be put together to form a better picture of the study (Corrigan & Onwuegbuzie, 2020; Creswell, 2012; Creswell & Plano Clark, 2017). However, they all agree that using multiple methods will increase the accuracy of the results of a research study (Begley, 1996; Doyle et al., 2009; Foss & Ellefsen, 2002; Halcomb & Andrew, 2005), and the tendency to combine quantitative and qualitative methods is becoming more prevalent in research methodologies in the area of humanistic and social sciences (Alise & Teddle, 2010; Bryman, 2006; Greene, 2006; Morgan, 2014). All in all, treating MMR as a mere combination of quantitative and qualitative data is against the nature of the method (Creswell, 2012; Corrigan & Onwuegbuzie, 2020).

The essence of MMR stands on the researcher's skills to reflect her/his belief in the strength of integrating two research paradigms (quantitative and qualitative) onto the entire research process (Corrigan & Onwuegbuzie, 2020; Salehi & Golafshani, 2010). The participants in our research also carried out similar discussions as to the epistemological and philosophical framework of the method. One of the most striking findings of this study surfaced as the opinion that researchers willing to conduct MMR should first internalize MMR paradigm. The shared opinion by the participants indicates that theoretical and philosophical foundation of MMR paradigm can be transferred to a research effort only through a process of

change that starts in mind and manifests in actions. The reason for this lies in the fact that MMR requires a solid control on the two methods; a flexible, dynamic, solution-focused, and creative mindset that can overcome emerging problems; an ability to deal with piles of data; an ability to integrate two data sets comprehensively; a close contact with developments; a system of work with discipline and perseverance; and team effort (Creswell, 2012; Teddle & Tashakkori, 2009; Wachsmann et al., 2019). As noted by the participants, shifting from one paradigm to a mixed understanding was not an easy process, and they all had to experience this change during their graduate thesis studies. If they had gone through this process earlier, it would have been easier for them to conduct their thesis studies because MMR researchers' actions and practice evolve and transform in time as their awareness, experiences, and competences grow. Consequently, MMR stops standing as just a way or tool, and the gates to the paradigm realm open. As a matter of fact, mixed method is considered as a new window, a new pair of glasses within the literature. Although it does not happen overnight, paradigm shift promises versatile contributions for researchers (Povee & Roberts, 2015; Secomb & Smith, 2011; Wachsmann et al., 2019).

MMR should be based on a need. In other words, there must be a rationale or a logical explanation in order to blend the methods (Creswell, 2012; Corrigan & Onwuegbuzie, 2020). Greene et al. (1989) lists five fundamental reasons to employ MMR: data triangulation, complementarity, development, initiation, and expansion. For instance, think about a study aiming to investigate the effect of learning disability over reading skills of primary school students. In such a study, a 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 most effective in improving reading skills, and in doing so, s/he may aim to predict the effect of a given intervention and to determine its effectiveness (Corrigan & Onwuegbuzie, 2020). The participants of the current research also agreed that the rationale for MMR should be rooted in research gaps and topics. All the participants were working in special education, and all had completed their thesis studies in the field of special education. Thus, the significance of MMR for the field of special education was heavily emphasized.

According to the participants' opinions, which were consistent with those in the literature, the reasons directing researchers towards different paradigms in special education include: diversity of students with various developmental and learning characteristics, diversity of research problems specific to various populations, need to provide in-depth answers to these questions, and discrepancy between theory and practice (Klingner & Boardman, 2011; Li et al., 2000; Trainor, 2011). So, the participants in this research confirmed the method's efficiency to provide solutions for real life problems and the compatibility between mixed methods research and the nature of special education. In addition, all the participants associated their rationales to opt for MMR with the strengths of the method, which were listed – again in consistence with the literature – as follows: eliminating the limitations of a single method, providing a broad perspective not bound to a single philosophy, collecting in-depth data from different sources, supporting validity and reliability efforts, complementarity and seeing the whole, and the power of reflecting the real world (Creswell, 2012; Johnson, & Onwuegbuzie, 2004; Leech & Onwuegbuzie, 2009). These strengths or the characteristics of the method were also reflected on the definitions provided by the participants. These findings indicate that the participants had basic information about the nature and characteristics of MMR, and about the rationales to employ the method. Yet, the fact that especially the participants who had completed their thesis studies long time ago had failed reflecting these pieces of information about MMR into their thesis studies was a finding contradicting with the participants' opinions. Accordingly, it may be concluded that the philosophical and theoretical framework of MMR

together with its aims and characteristics were not clear for the researchers of the old studies in Turkey, and thus were not precisely utilized in thesis studies.

Consistently with these findings, we observed that most recent thesis studies include a detailed definition of MMR and an explanation of why the research employs a mixed methods approach and the rationale for selecting the design based on a theoretical framework. This discrepancy can be regarded as the reflection of the scarcity in the number of available resources during when the older studies were completed. In addition, it is noteworthy that most of the participants aimed to evaluate the effectiveness of a program in their thesis studies and that the research questions were not in line with MMR but were generally directed towards the microsystem in Bronfenbrenner's (1979) ecological systems theory. All these findings can be interpreted as signs of development for both MMR and the field of special education in Turkey (Şan, 2020). As the field of special education grows and progresses in our country, so does the resources about MMR, and the philosophical foundation of this method together with its goals is embraced by larger groups of people (Corrigan & Onwuegbuzie, 2020). There are some theoretical studies investigating the relation between special education and MMR in the international literature (Collins et al., 2006), and the number of MMR studies in special education studies is on the rise (Klingner & Boardman, 2011; Trainor, 2011). The current study's findings also indicate that the growing body of resources about methodology in Turkey has led to a steady improvement in researchers' knowledge and experience about the place of MMR in special education and renewed their views regarding the method. Since nothing stays the same in time, this change observed in the participants can be noted as an expected consequence. Besides, this change will most probably be felt in the future studies.

It appears that many aspects of MMR are still in need of clarification (Corrigan & Onwuegbuzie, 2020; Doyle et al., 2009; Salehi & Golafshani, 2010). The meta-framework of MMR involving issues such as its designs, names, and stages is yet developing and evolving (Corrigan & Onwuegbuzie, 2020). Despite the rise of research outlining the meta-framework and the pillars of this method, the quality standards are not precisely specified (Collins et al., 2006; Corrigan & Onwuegbuzie, 2020; Onwuegbuzie & Collins, 2007). Anything new and developing is accompanied with certain controversies. This natural process causes MMR researchers to experience a significant variety of problems (Baim-Lance et al., 2020; Onwuegbuzie & Poth, 2016; Salehi & Golafshani, 2010; Wachsmann et al., 2019). The participants in this research also pinpointed some difficulties that they personally lived and observed during their thesis studies. These problems relate to a variety of issues from planning to implementation and from implementation to reporting, which are all compatible with those identified in the relevant literature.

The challenges begin with providing a rational explanation of the method within the planning stage, and the complicated nature of the terminology leads to confusion (Salehi & Golafshani, 2010). Lack of unity in terms of the names and designs of MMR in the international literature surfaces as ambiguity in Turkish translations of the method. For instance, one-to-one Turkish translation of the phrase 'mixed methods' has a plural reading, yet the Turkish language does not inflect the nouns for plurality unless the phrase is a proper noun known by everybody, such as "Three Musketeers." Thus, the name of the method has a plural ending in some resources and no number morpheme in others. Which one is correct?

Based on the interviews and the thesis studies we examined, planning and implementation of MMR is a lot of work and requires time management and teamwork. As for the participants, the length of time designated to complete the Ph.D. process in Turkey (six years maximum), and opportunities such as project funds facilitate the use of mixed methods. Data collection especially via simultaneous designs, analysis of in-depth data, and validity-reliability efforts are the major challenges experienced during the implementation stage. After the data collection process, the participants often had to find answers for the following

questions: “How will I deal with this in-depth and complicated data set?” “Which data set will I analyze first?” “How will I convert the results into an article?” Accordingly, one of the most prominent challenges the participants experienced themselves and observed in relevant research articles regarded the reporting stage; studies without a due and proper integration of the data sets did not actually reflect MMR. Similar to the findings of other studies, the MMR process was full of various challenges and caused emotional wear and considerable stress on part of the participants (Wachsmann et al., 2019). It feels plausible to conclude that fatigue and stress experienced during graduate thesis studies degraded the participants’ motivation significantly. Supervisors are critical in terms of managing this process and providing guidance to graduate students (Corrigan & Onwuegbuzie, 2020). The main reasons for these challenges that are also reported in many other studies can be listed as follows: participants’ and supervisors’ lack of knowledge and experience in methodology, poor guidance by the supervisors to direct their students to the right sources, lack of sources about methodology, and lack of manuals about quality standards (Corrigan & Onwuegbuzie, 2020; Salehi & Golafshani, 2010).

In conclusion, a wide variety of students with various cultural, developmental, and learning characteristics live in Turkey as well as in many other countries of the world. Different disability groups in special education increases this already existing diversity in student populations. Therefore, the reason for the participants to go for different paradigms and to employ MMR in their graduate thesis studies is rooted in their needs. Yet, an array of challenges from planning to reporting may prevent researchers from using the mixed methods approach. Similar to some of the studies in the international literature, the philosophical and theoretical background of MMR and its quality standards are not clearly reflected in the studies cited within the national literature, which indicates the gap between the theoretical content of the method and its practice. The manifestation of the theoretical and philosophical foundation of MMR in research studies calls for a paradigm shift that is first initiated in the mind and then observed in behaviors (Foss & Ellefsen, 2002; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddle, 2003). We predict that the mixed methods approach will be more appealing for many researchers in the future when its pragmatist and transformational effect and compatibility with the field of special education is more widely recognized.

How about the quality as the number of studies increase? The limitations stated during the interviews and observed in the thesis studies we examined inevitably raises the following question: “To what extent do the national research studies meet the quality standards of the mixed methods?” How will it be possible to apply the existing knowledge correctly to produce quality MMR if the available pool of information is both limited and complicated? Accordingly, the participants shared several suggestions that can guide novice researchers and increase the quality of MMR. We believe that these suggestions distilled from experience may prove worthy in prompting novice researchers. The fundamental suggestions include increasing both national and international resources, establishing MMR supervision systems and councils, developing manuals about quality standards, increasing the number of good examples in the field, improving the quality of supervision, adding MMR courses to the graduate curriculum, and developing models to foster teamwork.

This study is restricted with the participants’ opinions. Thus, future research can be conducted to explore the MMR experience of different participants. Mixed special education studies that access the macro level of ecological system can be designed, which enables multi-dimensional assessment of special education field. New research efforts may be directed for a discussion of the relation between MMR and special education, an explanation of the stages through principles, an exploration of the quality standards, and a consolidation of what researchers know about MMR. This may trigger new debates regarding the nature of MMR and its relation to special education in countries where methodological knowledge is

developing such as Turkey. Such debates and exchange of opinions may deliver the method from being a recent trend and a tool.

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