VOL 7(2)

e-ISSN
2602-3733

Research on Education and Psychology (REP)

Research on Education and Psychology (REP)
Volume: 7 • Number: 2 • 2023 • 182-369

Owner & General Manager
Bülent Dilmaç

Editorial Board

URL: http://dergipark.org.tr/rep
Email: editor.journalrep@gmail.com

Table of Contents

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: July 25, 2023
Accepted: September 22, 2023
http://dergipark.org.tr/rep
e-ISSN: 2602-3733

September 2023 ◆ 7(2) ◆ 182-202
Research Article
https://doi.org/10.54535/rep.1332595

Benefits of Parental Involvement Activities in the Preschool Period: A Comparison of Teacher and Father View

Cansu Tutkun[1]
Bayburt University
Fatma Tezel Şahin[2]
Gazi University
Ayşegül Akıncı Coşgun[3]
Aksaray University
Zeynep Nur Aydın Kılıç[4]
Gazi University

Abstract

The purpose of this study is to determine and compare the views of teachers and fathers on father involvement and the benefits of parental involvement activities in the preschool period. The sample included 23 preschool teachers employed at public and private schools in Turkey's capital of Ankara, and fathers of 53 children in these teachers' classrooms. This study is based on qualitative research that used an interview form to obtain data which is analyzed through content analysis. The findings of this study yield the deduction that both educators and paternal figures harbor the perception that parental involvement endeavors predominantly draw the attendance of mothers, with fathers exhibiting infrequent participation in such activities. The main reasons for fathers' lower attendance rates for these activities are found to be working schedule and unsuitable working hours of the fathers. According to both the teachers and the fathers children are happy in terms of the benefits of parent involvement activities for the children, the family gains awareness about their child and improves itself in terms of the benefits for the family, and these activities provided easiness of communication and problem-solving with families in terms of the benefits for the school and the teacher.

Key Words

• Preschool education • Parent involvement • Father involvement • Teacher views • Father views

[1] Bayburt University, Faculty of Education, Bayburt, Türkiye, Email: cansututkun06@hotmail.com **ORCID:** 0000-0002-2722-2274
[2] Gazi University, Faculty of Education, Ankara, Türkiye, Email: ftezel68@gmail.com **ORCID:** 0000-0003-2098-2411
[3] **Correspondence to:** Ayşegül Akıncı Coşgun, Aksaray University, Faculty of Education, Early Childhood Education Department , Türkiye, Email: aysegulakinci2011@gmail.com **ORCID:** 0000-0001-7195-5160
[4] Gazi University, Faculty of Education, Ankara, Türkiye, Email: zeynep.nur.aydin@hotmail.com **ORCID:** 0000-0001-9182-5152

Citation: Tutkun, C., Tezel Şahin, F., Akıncı Coşgun, A., & Aydın Kılıç, Z. N. (2023). Benefits of parental involvement activities in the preschool period: A comparison of teacher and father view. *Research on Education and Psychology (REP), 7*(2), 182-202.

Introduction

Parental involvement activities are significant factors in education programs for increasing success in preschool education, establishing positive relationships between the family and the child, and achieving continuation of education (Oke, et.al, 2020; Tezel Şahin & Özbey, 2009). Permanent behavioral changes in children attending preschool education facilities are only achievable with the assistance of learning experiences outlined in the curriculum in family life (Aral et.al, 2000). The imperative arises that the onus for the advancement and scholastic nurturing of children should be jointly borne by both the educational institution and the familial unit, as underscored in the works of Brooks (2009) and Kaya and Gültekin (2003). Schools need to focus on establishing a reliable and strong relationship between families and teachers, consider cultural differences of families, know their needs and respect them, as well as adopting a philosophy of 'partnership' where power and responsibility are shared (Henderson & Mapp, 2002).

McBride et.al (2002) stated that the term of parental involvement refers to efforts of collaboration between the school and the family to improve children's learning. According to Epstein (2010), parental involvement comprised the components of family, school and society, and children are in the center of this partnership. Parental participation is a very significant factor in terms of teachers sharing information with families about development of children, children's success at school, and their discipline and social awareness, which gives families the opportunity to inform the teacher about their children's situation at home. Conversely, the pedagogue possesses the capacity to provide individualized guidance to each pupil, thereby facilitating the optimization of their latent potential, as elucidated by Brooks (2009).

Studies have shown that education programs that focus on active parent involvement activities, collaboration between school and home have positive results for children, families and schools (Harpaz & Grinshtain, 2020; Henderson and Berla, 1994; NCES [National Center for Education Statistics], 2001). Parental involvement is directly related to support children's academic, psychosocial, social, self-regulation skills, and decrease problem behaviors (Brody, et.al, 1999; Kohl, et.al., 2000; Marcon, 1999; McWayne, et.al, 2004; Powell, et.al, 2010; Schultz, 2000; Topor, et.al 2010). In addition to this, parent involvement support children's early academic success (Anderson & Minke, 2007; Arnold, et.al, 2008; Fan & Chen, 2001; Kohl et al., 2000; Sénéchal, 2006). Besides, children attend school more regularly when their parents attended to parental involvement activies, adapt to the school environment more comfortably and show more positive behaviors (Henderson & Mapp, 2002). This improvement can continue not only in the school environment of children, but also in their future lives (Epstein, 2010; Henderson & Berla, 1994). Teachers acquire a better understanding of the child and the family when parents are involved, which allows them to create instructional programs that are tailored to the needs of the child (Eliason & Jenkins, 2003). Based on this information, it may be stated that parental involvement has several positive effects in terms of the child, family, the teacher and the institution. However, some studies have reported that there are obstacles in front of implementing parental involvement activities such as economic problems of the family, education levels, stress at home, attitudes of the family towards the school or parent involvement, and cultural differences (Castro, et.al, 2004; Coley & Morris, 2002; Fantuzzo, et.al, 2006; McBride et al., 2002; Raffaele & Knoff, 1999; Thompson, 2012). Furthermore, in

accordance with parental perspectives, it becomes evident that the educational institution and its educators constitute the most salient determinants of parental engagement.

Teachers' attitudes and ideas about this subject, on the other hand, are one of the barriers to parent engagement (Thompson, 2012). It has been stated that instructors believe they do not have enough time for parent engagement activities, and that since they lack information about how such activities should be carried out, the activities cannot be carried out enough (McBride et al., 2002). Studies on parent involvement activities have shown that mothers are more involved in these activities in comparison to fathers (Coley & Morris, 2002; McBride & Rane, 1997; Toth & Xu, 1999). However, it is known that including not only mothers, but also fathers in these activities has a significant effect on children's development and education (Tezel Şahin & Özbey, 2009). According to a study, increasing the amount of time fathers spend with their children has a positive impact on their cognitive, social, and emotional development. Furthermore, father participation, which includes behaviors such as father presence, parental satisfaction, child-rearing, and financial assistance, has been linked to children's intellectual growth. In this sense, the father's distinct relationships with the child, as well as differences in the roles they play in society and the family, lead him to have a different effect on the child than the mother (Downer, et.al, 2008; Mwoma, 2009). According to the scholarly work of Allen and Daly (2007), discernible outcomes manifest wherein children cultivate more favorable dispositions toward the educational environment, experience heightened levels of contentment, and exhibit increased enthusiasm in the discharge of their scholastic obligations when paternal involvement in school-related activities is realized.

It is believed that a study on parental involvement activities in the preschool period will contribute to the literature as the study involves a detailed analysis of which parent attends parent involvement activities more, as well as the reasons of fathers for attending less. Besides, considering that beliefs and views of mothers and fathers on parental involvement affect their attendance (Hoover Dempsey & Sandler, 1997), it is believed that investigating the views of fathers on parental involvement, and the benefits of such activities is important. Nevertheless, when we look at studies on family involvement, it is seen that the number of studies on father involvement is limited. While there are studies that compare teacher and parent opinions on the dimensions of parent involvement (Eğmez Köksal, 2008; Ladner, 2003; Ünüvar, 2010), it is seen that these studies were conducted mostly with mothers (Çaltık & Kandır, 2006; Çamlıbel Çakmak, 2010; Erdoğan & Demirkasımoğlu, 2010; Erkan, Uludağ & Dereli, 2016; Keçeli Kaysılı, 2008; Tezel Şahin & Turla, 2003; Tezel Şahin & Ünver, 2005). Based on all of the evidence, it is believed that a research comparing the views of teachers and fathers on parental involvement is necessary. As a result of this study, it will be possible to establish fathers' ideas and beliefs on the subject, as well as their challenges toward parental involvement activities. In terms of comparing the views of fathers and teachers, it is intended that this study will serve as a model for future research on the subject. Hence, the primary objective of this study is to ascertain and juxtapose the viewpoints held by both educators and fathers concerning the benefits engendered through parental involvement activities during the preschool phase, with a specific focus on paternal engagement.

Method

This study was designed based on qualitative research techniques (Glesne, 2012). The qualitative research process consists of managing the interconnections between the various dimensions of the study by the researcher (Miller & Dingwall, 1997).

Sample

The sample included 23 preschool teachers employed at public and private schools in Turkey's capital of Ankara and fathers of 53 children in these teachers' classrooms. Criterion sampling method was used in forming the study group of this research. In this sampling method, some predetermined It is aimed to study all situations that meet the criteria (Yıldırım & Şimşek, 2011). The criteria was that the teachers in the sample had at least two years of experience, and they graduated from departments of early childhood education or child development. For the fathers, the criterion of inclusion was that their children, who had normal developed, were at the age of 36-72 months.Demographic information of teachers is in Table 1.

Table 1

Demographic information of teachers

Teachers		**f**	**%**
Age	20-30 years	7	30.4
	31-40 years	6	26.1
	41 and above	10	43.5
Seniority	1-10 years	9	39.1
	11-20 years	6	26.1
	21 years and over	8	34.8
Number of children in the class	8-15 children	10	43.5
	16-22 children	13	56,5
Total		23	100

It was determined that 7 (30.4%) of the preschool teachers participating in the research are between the ages of 20-30; 6 (26.1%) were in the 31-40 age range and 10 (43.5) were 41 years old and over. 9 of the teachers (39.1%) are between 1-10 years; 6 (26.1%) have 11-20 years of seniority and 8 (34.8%) have 21 years or more of professional seniority. 10 (43.5%) of the teachers have 8-15 children in their class; In 13 (56.5%) classes, 16-22 children receive education.

Table 2 shows the distribution of fathers participating in the study and their children according to their characteristics.

Table 2

Demographic informations of fathers and their children

			f	%
Father	**Age**	20-35 years	25	47.2
		36-40 years	22	41.5
		41 years and above	6	11.3
	Education status	High school and below	16	30.2
		University	22	41.5
		Master	15	28.3
	Number of children	1	18	33.9
		2	27	51
		3 and over	8	15.1
Child	**Age**	36-48 month	15	28.3
		49-60 month	21	39.6
		61-72 month	17	32.1
	Gender	Girl	27	51
		Boy	26	49
	Total		53	100

Of the fathers participating in the study, 25 (47.2%) were aged 20-35, 22 (41.5%) were aged 36-40, and 6 (11.3 %) were aged 41 and over. In terms of educational status of the fathers, 16 (30.2%) were high school or below, 22 (41.5%) were university graduates, 15 (28.3%) were master's degree, in addition, 18 (33.9%) had one child, 27 (51%) had two children, and 8 (15.1) had 3 children and/or more.

It was determined that 15 (28.3%) of the preschool children were 36-48 months old, 21 (39.6%) were 49-60 months old and 17 (32.1) were 61-72 months old, and 27 (51%) of the children were girls, 26 (49%) of them were male.

Data Collection Tools

The data were collected using the "Teacher Interview Form" and the "Father Interview Form" which were developed by the researcher.

Teacher Interview Form

The form was consists of structured and semi-structured questions about parent involvement activities. The interview form, which was prepared on the basis of studies on the subject (e.g. Brooks, 2009; Epstein, 2010; McBride, et.al, 2002), in order to determine the opinions of preschool teachers about the family involvement studies

implemented in their schools, consists of two parts. The inaugural segment of the questionnaire encompasses inquiries pertaining to the age, professional tenure, educational attainment, and the compositional size of the pupil cohort under the purview of the instructors. The second part consists of structured and semi-structured questions about parent involvement activities. Some of the questions in the form are as follows: "Do you think family participation studies are beneficial for children? What do you think are the benefits of family participation studies for children?"

Father Interview Form

A father interview form was prepared by the researchers based on the studies on the subject (e.g. Fagan & Palm, 2004; Gonzalez et.al, 2023; White et.al, 2023) in order to determine the views of fathers whose children attend preschool education institutions on family participation studies. The first part consists of questions on the fathers' age, education status, number of children and the age, sex and order of birth of the child included in the activities. The second part consists of structured and semi-structured questions about parent involvement activities in parallel to those in the "Teacher Interview Form". Some of the questions in the form are as follows: "Do you think family participation studies are beneficial for your child? In your opinion, what kind of benefits do family participation studies have for your child?"

Data Collection and Analysis

For data collection, firstly, meetings were held with the principals of the schools where the study would be conducted. Participants were informed about the aim of the study and data collection tools. After receiving permission from the principals of the schools, separate meetings were held with the teachers and the fathers. The participants were told that the study would be conducted voluntarily, their names would not be shared with third parties due to research ethics, and they were needed to reflect their actual experiences and observations while answering questions. The interviews were conducted in a silent, physically comfortable setting at the preschool education institutions, and they lasted for about 30 minutes. The interviews were written by hand for recording.

In the course of this investigation, content analysis emerged as the chosen methodological approach employed for the scrutiny and interpretation of qualitative data procured via semi-structured interviews, wherein the participants, encompassing both teachers and fathers, expounded upon their respective experiences and perspectives.

Content analysis is a scientific approach which inquires on a social reality by objective and systematic classification of the message of verbal, written and other materials in terms of meaning and grammar, transforming it into numbers and making inferences (Tavşancıl & Aslan, 2001).

With this purpose, the collected data need firstly to be conceptualized, and then, to be divided into categories in a logical way based on the resulting concepts and the themes that explain the data (Tavşancıl & Aslan, 2001; Yıldırım & Şimşek, 2011). For this purpose, the information collected in the interviews was organized in the computer environment and a data set was formed. Then, numbers (1, 2, 3, 4, …) were assigned to the data set, and the teachers

were coded 'T', the fathers were coded 'F'. Coding was carried out not by using predetermined concepts, but by utilizing the concepts derived from the data of the study. The codes that were obtained at the first stage were then collected under certain categories. In this manner, the acquired data underwent a systematic categorization process via the application of discrete codes. The recurrence of these codes was subsequently quantified in terms of both percentages and frequency values. This methodological approach not only enhanced the overall reliability and credibility of the study but also facilitated meaningful comparisons within and across the delineated categories. The divided data were supported by direct quotes when needed. These quotes were written in italic, and the number for source data for the quote was given in parentheses. As Yıldırım and Şimşek (2011) also stated, it is believed here that, in qualitative studies, frequent inclusion of direct quotes is important for the purpose of reflecting the views of the participants in an explicit way.

Trustworthiness

Essentially, qualitative research methods have the tendency to be related to words as units of analysis, and as they are not number-related like quantitative methods, it is highly important for qualitative methods to take precautions that will contribute to the credibility, reality and originality of the study, namely credibility (Daymon & Holloway, 2003; Glesne, 2012; Miles & Huberman, 2015). With this purpose, some methods were used to achieve credibility and trustworthiness in this study. While preparing the interview forms, firstly a literature review was carried out on family education, parent involvement and father involvement. After the literature review, the structured and semi-structured items were formed. In order to achieve content credibility, 3 experts of the field were consulted for the teacher interview form, while 3 experts in the field of preschool education and 4 teachers were consulted for the father involvement interview form. Criteria such as "Are the questions clear? Are they suitable? What else might one ask?" were determined for the experts and their opinions were collected. The interview forms were given shape as a result of consulting experts and teachers. Later on, in order to clarify the state of the study and the questions, and with the purpose of helping reveal and test the assumptions of the researchers on the subject and context of research (Glesne, 2012), a pilot study was carried out with three preschool teachers and three fathers. As a result of the pilot study, it was seen that there were no problems in terms of the content and language of the questions or the length of the interviews, and the forms were given their final shape. In the pursuit of bolstering the credibility of a research endeavor, the incorporation of data triangulation emerges as a pivotal criterion during the data collection phase. Additionally, it is incumbent upon the researcher to solicit perspectives from diverse individuals situated within disparate environmental contexts, a principle underscored by Glesne (2012). This is why 23 teachers and 53 fathers from 9 different public and private preschool education institutions were included in the study to utilize data triangulation (Glesne, 2012). In order to achieve dependability in the study, the consistency between teacher and father responses was analyzed. For triangulation, the data were coded by two researchers based on the criterion of avoiding personal views, emotions and prejudices in data analysis, and the agreement between these codes were tested.

Findings

In this section, the findings obtained from the analysis of the interviews are presented. Content analyzes revealed 5 main themes (fig.1). These themes were (1) Which parent participates more in family involvement activities, (2) Reasons why fathers participate less in family involvement activities, (3) Benefits of family involvement activities for children, (4) Benefits of family involvement activities for parents, and (5) The benefits of family involvement activities to the teacher and the school.

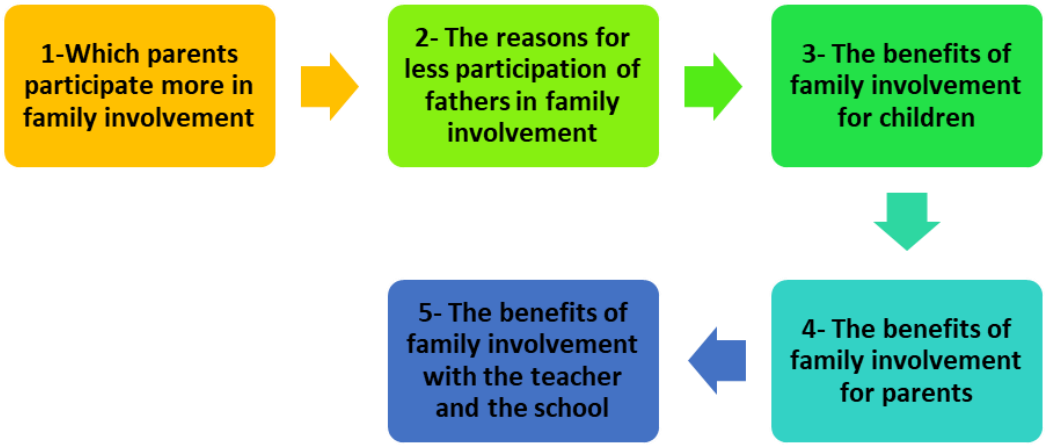


Figure 1. Themes obtained from the analysis of the interviews

Views on the Reasons Why Fathers Participate Less in Parent Involvement Activities

Both the teachers and the fathers expressed the major reason to be working conditions and working schedule for participating less in parental activities. Some statements regarding this were; "*Father's working hours are not suitable*" (*T-13*). "*I have problems with time. Because my work program is full. This is why my wife attends these*" (*F-40).*

In addition to this, the teachers (f=6) stated that another reason for fathers attending parental involvement activities less frequently may be that the fathers considered it as a duty for the mothers and leave the responsibility to them. Similarly, five fathers stated this view. Some statements regarding were as the following: "*In our culture children are generally brought up by mothers. It is widespread in our culture*" (*T-9*). "*Responsibility for the child should belong to the mother*" (*F-17*).

It can be said that the reasons for fathers' lower attendance in parent involvement activities were explained by the teachers (f=3) and the fathers (f=3) as these activities are usually believed to be designed for mothers. Some statements by the teachers and fathers regarding as the following: "*Even the fathers who want to attend are*

uncomfortable when they see all mothers at activities" (*T-7*). "*Usually the mothers go there. The fathers do not attend. This is why I did not attend the meetings*" (*F-2).*

Likewise, it was seen that both teachers (f=2) and only one father (f=1) stated as a reason for less frequent attendance by fathers that the teachers are women. Some statements regarding these as the following: "*As the teachers are female, fathers can not speak more comfortably with teacher, they cannot speak some problems with us*" (*T-9*). "*As the teacher is a woman, it is easier to communicate with my wife. This is why my wife attends these activities*" (*F-53).*

In difference to the fathers, the teachers stated some reasons for the lower rates of participation by the fathers as that the fathers are shy (f=3) and indifferent (f=2), they have lack of self-esteem (f=2) and they lacked responsibility (f=1). One of the interesting statement of the teachers regarding these as the following: "*I think the reason for this is related to having awareness. Responsible fathers think they have as much responsibility on the child as the mother. For example, they come to picnics with their child, arrange the school bus for their child, prepare the child's lunch, help their wife in issues related to children*" (*T-10*).

In contrast to the responses provided by the teachers, several fathers articulated their rationales, positing that the greater availability of mothers, often due to their role as housewives (f=4), and the proximity of the mother's workplace to the child's school (f=4), factored prominently into their limited participation. Some statements regarding this were as the following: "*My wife does not have a problem with time as she is a housewife*" (*F-1*). "*My wife's workplace is walking distance from here. She arranges the course schedule accordingly. My working hours are not fixed. As my wife's schedule is fixed, she does the planning accordingly and she attends the activities*" (*F-51).*

Views on the Benefits of Parent Involvement Activities for Children

Both teachers (f=8) and fathers (f=8) included children becoming happy as a benefit of parental involvement activities. Some statements regarding as the following: "*The child whose family visits becomes happy. Activities of the family like reading stories or baking cookies make children happy*" (*T-21*). "*He/she becomes happy when we see what he/she does*" (*F-45).*

Regarding the benefits of parental involvement activities for children, it was found that teachers (f=8) and fathers (f=6) had an agreement on children's increased self-confidence. Some statements as the following: "*Children feel better, their self-confidence is improved*" (*T-22*). "*It increases my child's self-confidence, he thinks, my father is by my side*" (*F-18).*

Some teachers (f=3) and fathers (f=2) stated their views that children are more willing to go to school thanks to parent involvement activities. Some statements regarding as the following: "*Children's opinion of the school changes.* "*They get more used to the school. They like to come to school*" (*T-22*). "*My child is more willing to go to school*" (*F-1*).

Both teachers (f=3) and fathers (f=6) emphasized that such activities contributed to socializing of the children. In addition to this, both teachers (f=3) and fathers (f=1) stated that children's communication with their family is improved thanks to these activities. Some statements regarding as the following: "*They experience social satisfaction, their social side is improved*" (*T-10)*. "*It provides benefits in terms of socializing of the child*" (*F-10*).

Teachers stated that as a result of these activities, children gain positive behaviors (f=3), spend quality time with their families (f=2) and these activities contribute to children's learning (f=1). Fathers also thought parent involvement activities contribute to the development of children (f=10). Some statements of the teachers as the following: "*Mutual decisions and mutual solutions for children are beneficial for them. Acting in unison and with consistence provides the child with positive behaviors*" (*T-12*). "*I think they are useful for my child to be educated and developed suitably*" (*F-4*).

Furthermore, noteworthy within the study's findings was the observation that two participating fathers expressed the perspective that parental involvement activities yielded negligible advantages for their children, thereby emphasizing the absence of discernible benefits from their vantage point.

One of the statement of the fathers regarding these as the following: "*It has no benefit for the child. The organize meetings when they want to collect money or there is something to buy*" (*F-35).* 15 fathers also stated that they had no idea about the benefits of parent involvement acvities.

Views on the Benefits of Parental Involvement Activities for Parents

Benefits of family involvement practices for families are stated. According to this, getting awareness was the dominant idea for benefits provided by parental involvement activities for families, stated teachers (f=7) and fathers (f=15). Additionally, it was found that the vast majority of the fathers (f=17) stated opinions about "being able to monitor development of the child", while the teachers did not provide any opinion in this. Some statements regarding these as the following: "*Families do not know how to behave with their children. These activities may provide benefits for what kinds of toys they would buy their children, place of family in playing games, child development, communication with the child, behavior interventions*" (*T-3*). "*I gain information about my child. I can observe behaviors that he/she does not show at home but shows at the school*" (*F-24*).

Some teachers (f=7) and fathers (f=2) stated that parent involvement activities "increase family's confidence in the school and the teacher." Some statements regarding this as the following: "*When they see the child in the classroom, the questions in their heads disappear. They see what is going on in the classroom. They see what a kindergarten is. Perceptions articulated by participants included statements such as, "They see that this is not only a place for playing games, but it also provides children with some things" (T-3), indicative of an evolving recognition that schools serve a purpose beyond mere recreation. Another participant noted, "Our confidence in the school and the teacher as parents increases" (F-6), implying an augmentation of trust and reliance in the educational institution and its instructors with respect to their parental role.*

Both teachers (f=4) and fathers (f=4) stated that it is possible to "spend quality time with children" thanks to these activities. In addition to this, both teachers (f=3) and fathers (f=3) emphasized the "strengthening of child-family communication" benefit of parent involvement activities. Some statements of teachers regarding as the following: "*As they return home in the evening tired, they get to spend quality time with their children this way.* (*T-18*); *Fathers learn how to communicate with their child. Their communication with their spouse and child is improved*" (*T-5*).

Some teachers (f=2) and fathers (f=2) stated that family involvement activities "made parents happier." In difference to the fathers, teachers were observed to state their views that parent involvement activities are beneficial because "they increase the self-confidence of the family" (f=2). Some statements regarding this as the following: "*The family feels better, this increases their confidence in themselves*" (*T-1*); "*Parents are experiencing the pleasure of doing something for their child*" (*T-19*).

Furthermore, fathers elucidated perceived advantages, notably including the ability to engage in an exchange of ideas with the teacher (f=3). Additionally, one father underscored the value of the opportunity to interact with other parents (f=1) as a consequential benefit derived from their involvement in school-related activities. One statements' of fathers regarding this as the following: "*We get to meet other parents. We sit somewhere with fathers and have a chat. A sensitive family should think they need to be interested*" (*F-45*).

It was seen that some fathers (f=11) responded as "I have no opinion" and one father stated that such activities have no benefit for the family. This statement was as the following: "*I do not think there is a benefit for us as a family. Maybe if it was the first child*" (*F-5*).

In the "benefits of family involvement practices for the teacher and the school," both teachers (f=8) and fathers (f=8) considered parent involvement activities to have the benefit of "easiness of communication with the family." Some statements regarding as the following: "*I get the chance to have much better communication with the parents*" (*T-11*); "*Our collaboration gets better. You get closer. They share more with us, thus, we are more useful for the children*" (*T-21*); *"There is better communication*" (*F-24*); "*It is useful for communication*" (*F-24*).

Some teachers (f=6) and fathers (f=2) thought parent involvement activities provided "professional motivation" for teachers. Another result showed that both teachers (f=4) and fathers (f=12) emphasized these activities lead teachers to know the child and the family better. Some statements regarding this as the following: "*I become productive and get motivated*" (*T-22*); "*As the teacher forms a more reliable relationship, they must be doing their job in a more motivated way*" (*F-6*). "*We get to know the parents. This helps us understand the reasons for the children's behaviors more easily. When I get to know both parents at the same time, I can understand the state of the child at home better*" (*T-10*).

Similarly, it was found that both teachers (f=3) and fathers (f=7) emphasized the "provision of experience" for teachers by parent involvement activities. Some statements regarding this as the following; "*I think it is useful for*

them to improve themselves professionally" (*F-4*); "*When they gain information on the behaviors of the child, they become more experienced. I think this contributes to the teacher's self-improvement*" (*F-51).*

Views on the Benefits of Parent Involvement Activities for the Teacher and the School

Benefits of family involvement practices for the teacher and the school, as differently from the fathers, teachers mentioned benefits as "acknowledging the value of the teacher" (f=3), providing the teacher with "opportunities for different activities" (f=2), and "spending quality time" (f=2). Some statements regarding as the following: "*Most people have the impression that a kindergarten teacher is not doing much. At least, when activities are held for parents, they see what the teachers are doing for the children. Families get to see the school, too*" (*T-3*); "*Parents see the situation at the school more clearly. There are 16 different requests coming from the parents of each child. While someone is saying, please … for my child, another jump in for another request. However, families understand this when they see the classroom. This is useful for us*" (*T-17*); "*I get to involve another color in daily routine activities*" (*T-19*).

On the other hand, unlike the teachers, the fathers expressed their views that benefits for the school and the teacher included "easing the workload of the teacher" (f=1). A statement regarding the following: "*These ease the teacher's workload*" (*F-14*). It was observed that a large proportion of the fathers (f=24) responded as "I have no opinion". Some of these statements were as the following: "*I do not know. We need to ask the teacher*" (*F-22*); "*I would not know it.*" (*F-37*).

Conclusion, Discussion and Recommendations

Based on the findings of the study, it is observed that mothers are the ones who attend parental involvement events the most, according to both preschool teachers and fathers. Mothers have also shown to be more involved in the home environment and school-related activities in previous studies on the subject (Coley & Morris, 2002; McBride & Rane, 1997). Hence, a reasonable inference that can be drawn from the study's findings is that maternal participation in parental involvement activities tends to surpass that of fathers. The research reveals that the major cause for fathers' less frequent engagement in parental involvement activities was their work schedule and inadequate working circumstances, as indicated by both teachers and fathers. A study by Yaşar Ekici (2014) also found that the most important reason why parents do not attend parent involvement activities, according to preschool education institution administrators, teachers and parent, was that parents were working. A study by McBride et al. (2002) with preschool teachers also stated the reasons that prevent families from attending these activities as lack of time, problems in transportation, that families are not aware of the importance of family involvement and that families have a negative attitude towards the school environment. In a parallel vein, Hoover Dempsey and Walker (2002) have noted in their research that a notable impediment encountered by both educators and parents with regards to parental involvement pertains to the constraint of available time, thus underscoring its significance as a formidable barrier.

Another finding of the study was that, according to the teachers, one of the reasons why fathers participated in the activities less frequently was because they regarded them as the responsibility of the mothers. These findings suggest that fathers did not want to take on much responsibility for activities involving their children and instead delegated this to their mothers. According to the study by Lawson (2003), teachers thought parents should help the school for their children's academic achievement, but families usually ignore such responsibilities. In regards to fathers' lack of participation in parental involvement activities, it was discovered that teachers believe such programs are often organized for women, while fathers believe that participants are primarily mothers. Fagan and Palm (2004) found that fathers were unwilling to participate when they heard that other fathers at the school would not participate either. Similarly, Gürşimşek et al. (2007) found that fathers did not believe necessity of participation and fathers had some difficulties about communication with teachers. The findings of this study bring to the forefront the imperative need for a more judicious and concerted organization of father involvement initiatives within the ambit of parental engagement activities. These results underscore the necessity for enhanced support mechanisms to be instituted to bolster and facilitate paternal participation in such endeavors.

Both the teachers and the fathers in the study stated that children become happier, their self-confidence increases, they are more willing to go to school, these activities contribute to their socialization, and children's communication with their families improves as a result of parent involvement activities. Not unlike the fathers, the teachers also said that parent involvement activities help children develop positive habits, spend more quality time with their parents, increase their learning, and develop responsibility skills. The majority of research in the literature on parental engagement activities found that these activities had a positive impact on children school achievement (Brooks, 2009; Galindo and Sheldon, 2012; Rimm Kaufman et al., 2003), self-esteem and self-confidence (McBride et al., 2002), language abilities (Fantuzzo et al., 2004) and social skills (Powell et al., 2010). Therefore, it can be said that prioritizing parent involvement activities, especially from a young age, will benefit children's development.

Another result of this study was that mothers participated more in parental involvement activities in comparison to fathers. Fathers may believed, these activities are not necessary for children. Hoover Dempsey and Sandler (1997) stated that, the beliefs of fathers regarding the benefits of parental involvement activities for their children are influential on their participation. It is assumed that if fathers believe that these activities would help their children, they will participate more. In this context, McBride et al. (2002) found that parent involvement activities contributed to parents understanding of their child, increased the commitment to participate in future activities and awareness, and strengthened their communication with other parents and school personnel. Similarly, Henderson and Berla (1994) reported in their study that families trusted the school and the teachers more thanks to parental activities.

Regarding the benefits provided by parent involvement activities in preschools for the family, it was emphasized by the teachers and parents that these are beneficial in terms of "the family's raised awareness about the child". It was also stated by some teachers and fathers that, thanks to parent involvement activities, "increase family's confidence in the school and the teacher," these activities "get the parents to spend quality time with their child" and they "strengthen child-family communication." Like the fathers, the preschool teachers in the study mentioned benefits as "an increase in self-confidence of the family". On the other hand, the fathers also stated benefits as "being

able to exchange ideas with the teacher," "becoming happy," and "opportunity to meet other parents." Similarly, Kaya and Gültekin (2003) found that parent involvement activities would firstly make the parents happy, contribute the interrelationships of the mother, the father, the child and the environment, and provide opportunities for the parents to observe and assess their child better.

The benefits of parental involvement activities in preschools for teachers, according to both teachers and fathers, include "the provision of ease in communicating with parents." Some teachers and fathers believed that such activities gave teachers with "professional motivation." Furthermore, both the instructors and the fathers noted that these activities allowed the teacher to have a better understanding of the child and the family, as well as offer experience to the teachers. According to the preschool teachers, "the importance of the teachers is acknowledged," "opportunities of varied activities are offered to teachers," and "quality time is spent". However, the fathers also highlighted the category of "reducing the teacher's workload." Educators constitute a pivotal cornerstone within the realm of parental involvement activities, signifying one of the foremost determinants of family engagement in school-related endeavors. The quality and depth of teacher-family connections have the potential to exert a profound influence on the level of familial participation in school activities, as well as the broader sphere of support extended to the educational institution. Family participation levels may influence teachers' views toward families, and therefore the quality of the teacher-family connection may be influenced (Kohl et al., 2000).

There are studies in the literature which reached similar results. Henderson and Berla (1994) determined that, in terms of the benefits they provide for the teacher and the school, parent involvement activities provided teachers with motivation, teachers received more support from families, the success levels of children in their classroom increased, and families assessed teachers more positively. McBride et al. (2002) reached the conclusion that, with parent involvement activities, teachers will understand children and parents better, and form better relationships with families. Thompson (2012) revealed that beliefs of teachers in parent involvement activities constitute a significant and determining factor in their experiences of planning and implementing parent involvement activities. Additionally, in a study by Xu and Gulosino (2006) on this issue, it was shown that the interaction between the teacher and the family was a positive indicator in children's success. In the light of all this information, it may be stated that achieving parent involvement is highly important for children, parents, schools and teachers. Another important point here is continuity of parent involvement activities. As stated by Linden (2010), continuous parent involvement is a key factor in achieving positive behavioral change in children and sustaining such change.

As a result of the study, it was seen that both the teachers and the fathers agreed that parent involvement activities are useful for children, parents, school and teachers. However, it was found that the fathers failed to demonstrate this in terms of participation. A family should be curious about why their child is doing at the school, receive information from the school and constantly monitor the development of the child. Therefore, positive or negative developments in the child will be noticed in a shorter time and early intervention will be possible. These may be achieved both by direction of the family by the school, and the family not neglecting these issues. Therefore, in order to increase parent involvement and especially father involvement, it is recommended to plan activities at times and in ways that will allow both parents to attend. Schools and educators should guide the family regarding activities that will

diversify and enrich fathers' relationships with their children. Planning should be made for activities that will create experiences that improve and enrich the relationships of fathers with teachers. For example, it may be stated that the effect of the "Program for Distinctive Fathers Education" (Tutkun, 2017), "Daddy & Me" (McBride & McBride, 1993), "Dads Tuning in to Kids" (Wilson, Havighurst, and Harley, 2014; Wilson et al., 2016), and "Father Friendly Initiative" (Pearson et al., 2003) will be highly beneficial in achieving father involvement in preschool education. In addition to this, implementations and environments that will encourage father involvement should be organized in preschool education institutions. Settings where fathers will be able to share the outcomes they reached as a result of their involvement in the education process should be prepared. Additionally, teachers should be informed about parent involvement, and their awareness should be raised in terms of the diversity of the activities to be carried out.

On the other hand, practices that will promote fathers' active participation in their children's education not only on the level of teachers but also on the level of schools and policy-makers may be supported. Policy-makers may take initiatives to include the father involvement and education programs exemplified above or similar programs in the national curriculum. Educational institutions may consider the facilitation of informational sessions and seminars conducted by subject matter experts with the explicit aim of garnering a more comprehensive understanding of the multifaceted dimensions surrounding father involvement. Such initiatives can serve as a conduit for the augmentation of perspectives, knowledge, and competencies pertaining to paternal engagement. Furthermore, they can contribute to the cultivation of a conducive milieu conducive to fostering collaborative engagement between parents and educators.

It is recommended for future studies to conduct in-depth analysis of practices related to parent involvement and identify the difficulties that arise during implementation. In-depth interviews might be conducted to determine why parents and teachers have opposing viewpoints on parental participation.

Ethic

In this study, scientific, ethical and citation rules were followed; It has been committed that no falsification has been made on the collected data, and that all responsibility belongs to the authors for all ethical violations to be encountered.

Author Contributions

All authors contributed equally to the study.

Conflict of Interest

There is no conflict of interest

Funding

There is no funding support

References

Allen, S., & Daly, K. (2007). *The effects of father involvement: An updated research summary of evidence.* Guelph, Canada: Centre for Families, Work & Well-being. University of Guelph.

Anderson, K. J., & Minke, K. M. (2007). Parent involvement in education: Toward an understanding of parents' decision making. *The Journal of Educational Research*, *100*(5), 311-323. http://www.jstor.org/stable/27548195

Aral, N., Kandır, A., & Can Yaşar, M. (2000). *Okul öncesi eğitim ve anasınıfı programları[Pre-school and kindergarten programs]*. İstanbul: Ya-Pa Yayınları.

Arnold, D. H., Zeljo, A., Doctoroff, G. L., & Ortiz, C. (2008). Parent involvement in pre-school: Predictors and the relation of involvement to preliteracy development. *School Psychology Review*, *37*(1), 74-90.

Brody, G. H., Flor, D. L., & Gibson, N. M. (1999). Linking maternal efficacy beliefs, developmental goals, parenting practices, and child competence in rural single-parent African American families. *Child Development*, *70*(5), 1197-1208.

Brooks, T. O. (2009). *Measuring parent involvement in relation to student achievement*. Unpublished Doctoral Dissertation, Lindenwood University, United States.

Castro, D. C., Bryant, D. M., Peisner Feinberg, E. S., & Skinner, M. L. (2004). Parent involvement in Head Start programs: The role of parent, teacher and classroom characteristics. *Early Childhood Research Quarterly*, *19*(3), 413-430.

Coley, R. L., & Morris, J. E. (2002). Comparing father and mother reports of father involvement among low-income minority families. *Journal of Marriage and Family*, *64*(4), 982-997.

Çaltık, İ., & Kandır, A. (2006). Okul öncesi eğitim kurumlarında görevli öğretmenlerin 2002 okul öncesi eğitim programında aile katılımının sağlanmasına ilişkin görüşlerinin incelenmesi [Examining the views of teachers working in pre-school education institutions on ensuring family participation in the 2002 pre-school education program.]. *I. Uluslararası Ev Ekonomisi Kongresi*, Ankara.

Çamlıbel Çakmak, Ö. (2010). Okul öncesi eğitim kurumlarında aile katılımı [Family involvement in pre-school education institutions]. *Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *20*(20), 1-18.

Daymon, C., & Holloway, I. (2003). *Qualitative research methods in public relations and marketing communications.* London: Routledge.

Downer, J., Campos, R., McWayne, C., & Gartner, T. (2008). Father involvement and children's early learning: A critical review of published empirical work from the past 15 years. *Marriage & Family Review*, *43*(1-2), 67-108.

Eğmez Köksal, C.F. (2008). *Okul öncesi eğitim kurumlarında ailenin eğitime katılımı [Participation of the family in education in pre-school education institutions]*. Unpublished Master Dissertation, Sakarya University, Sakarya.

Eliason, C. F., & Jenkins, L. T. (2003). A *practical guide to early childhood curriculum*. N.J.: Merrill.

Epstein, J. L. (2010). School/family/community partnerships: Caring for the children we share: When schools form partnerships with families and the community, the children benefit. These guidelines for building partnerships can make it happen. *Phi Delta Kappan*, *92*(3), 81-96.

Erdoğan, Ç. & Demirkasımoğlu, N. (2010). Ailelerin eğitim sürecine katılımına ilişkin öğretmen ve yönetici görüşleri [Opinions of teachers and administrators on the participation of families in the education process]. *Kuram ve Uygulamada Eğitim Yönetimi Dergisi*, *16*(3), 399-431.

Erkan, S., Uludağ, G., & Dereli, F. (2016). Okul öncesi öğretmenleri, okul yöneticileri ve ebeveynlerin aile katılımına ilişkin algılarının incelenmesi [Examination of preschool teachers, school administrators and parents' perceptions of family involvement]. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi, 17*(1), 221-240.

Fagan, J., & Palm, G. (2004). *Fathers and early childhood programs*. Clifton Park, NY: Thomson Delmar Learning.

Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, *13*(1), 1-22.

Fantuzzo, J., McWayne, C., Perry, M. A., & Childs, S. (2004). Multiple dimensions of family involvement and their relations to behavioral and learning competencies for urban, low-income children. *School Psychology Review*, *33*(4), 467–480.

Fantuzzo, J., Perry, M. A., & Childs, S. (2006). Parent satisfaction with educational experiences scale: A multivariate examination of parent satisfaction with early childhood education programs. *Early Childhood Research Quarterly*, *21*(2), 142-152.

Galindo, C., & Sheldon, S.B. (2012). School and home connections and children's kindergarten achievement gains: The mediating role of family involvement. *Early Childhood Research Quarterly*, *27*(1), 90-103. doi:10.1016/j.ecresq.2011.05.004.

Glesne, C. (2012). *Nitel araştırmaya giriş (Eds: A. Ersoy & P. Yalçınoğlu).* Ankara: Anı Yayıncılık.

Gonzalez, J. C., Klein, C. C., Barnett, M. L., Schatz, N. K., Garoosi, T., Chacko, A., & Fabiano, G. A. (2023). Intervention and implementation characteristics to enhance father engagement: a systematic review of parenting interventions. *Clinical child and family psychology review*, *26*(2), 445-458.

Gürşimşek, I., Kefi, S., & Girgin, G. (2007). Okulöncesi eğitime babaların katılım düzeyi ile ilişkili değişkenlerin incelenmesi [Examining the variables related to the participation level of fathers in preschool education]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, *33*(33), 181-191.

Harpaz, G., & Grinshtain, Y. (2020). Parent–teacher relations, parental self-efficacy, and parents' help-seeking from teachers about children's learning and socio-emotional problems. *Education and Urban Society* 001312452091559. doi:10.1177/0013124520915597.

Henderson, A. T., & Berla, N. (1994). Introduction. In A. T. Henderson & N. Berla (Eds.), *A new generation of evidence: The family is critical to student achievement* (pp. 1-20). Washington, DC: National Committee for Citizens in Education, Center for Law and Education.

Henderson, A. T., & Mapp, K. L. (2002). A new wave of evidence: The impact of school, family, and community connections on student achievement. Annual Synthesis 2002. *National Center for Family and Community Connections with Schools*.

Hoover Dempsey, K. V., & Sandler, H. M. (1997). Why do parents become involved in their children's education? *Review of Educational Research*, *67*(1), 3-42.

Hoover Dempsey, K. V., & Walker, J. M. (2002). Family-school communication. *Elementary School Journal*, 1-35.

Kaya, Ö. M., & Gültekin, M. (2003) Okul öncesi eğitim kurumlarında uygulanan programlara ailelerin ilgi ve katılımları ile okul öncesi eğitim kurumlarının aile eğitimine katkısı konusunda anne-baba görüşleri [Parental views on the interest and participation of families in the programs implemented in pre-school education institutions and the contribution of pre-school education institutions to family education]. *OMEP Dünya Konsey Toplantısı ve Konferansı Bildiri Kitabı, 3*, 311-333.

Keçeli Kaysılı, B. (2008). Akademik başarının arttırılmasında aile katılımı [Family involvement in increasing academic success]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi*, *9*(1), 69-83.

Kohl, G. O., Lengua, L. J., & McMahon, R. J. (2000). Parent involvement in school conceptualizing multiple dimensions and their relations with family and demographic risk factors. *Journal of School Psychology*, *38*(6), 501-523.

Ladner, J. L. (2003). *Parents' and teachers' perceptıons of parent involvement.* Unpublished Master Dissertation, University of Tulsa, Oklhoma- United States.

Lawson, M. A. (2003). School-family relations in context parent and teacher perceptions of parent involvement. *Urban Education*, *38*(1), 77-133.

Linden, R. (2010). An evidence-based approach to community safety. *International Journal of Child, Youth and Family Studies*, *1*(1), 53-77.

Mapp, K. L. (2002). *Having their say: Parents describe how and why they are involved in their children's education.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Marcon, R. A. (1999). Positive relationships between parent school involvement and public school inner-city pre-schoolers' development and academic performance. *School Psychology Review*, *28*(3), 395-412.

McBride, B. A., Bae, J. H., & Wright, M. S. (2002). An examination of family-school partnership initiatives in rural prekindergarten programs. *Early Education and Development*, *13*(1), 107-127.

McBride, B. A., & McBride, R. J. (1993). Parent education and support programs for fathers. *Childhood Education*, *70*(1), 4-9. DOI: 10.1080/00094056.1993.10520973.

McBride, B. A., & Rane, T. R. (1997). Father/male involvement in early childhood programs: Issues and challenges. *Early Childhood Education Journal*, *25*(1), 11-15.

McWayne, C., Hampton, V., Fantuzzo, J., Cohen, H. L., & Sekino, Y. (2004). A multivariate examination of parent involvement and the social and academic competencies of urban kindergarten children. *Psychology in the Schools, 41*, 363–377.

Miles, M. B., & Huberman, M. A. (2015). *Nitel veri analizi [Qualitative data analysis] (Eds: S. Akbaba Altun & A. Ersoy).* Ankara: Pegem Akademi.

Miller, G., & Dingwall, R. (1997). Context and Method in Qualitative Research. London: Sage.

Mwoma, B. T. (2009). *Paternal involvement in children's education: An implication of children's performance at pre-school in Gucha district Kenya*. Unpublished Doctoral Dissertation, Kenyatta University, Kenya.

NCES-National Center for Education Statistics. (2001). *Fathers' and mothers' involvement in their children's schools by family type and resident status.* Washington, DC: Office of Educational Research and Improvement.

Oke, A., Butler, J. E., & O'Neill, C. (2020). Identifying barriers and solutions to increase parent-practitioner communication in early childhood care and educational services: the development of an online communication application. *Early Childhood Education Journal*, pp. 1-11. doi:10.1007/s10643-020-01068-y

Patrikakou, E. N., & Weissberg, R. P. (2000). Parents' perceptions of teacher outreach and parent involvement in children's education. *Journal of Prevention & Intervention in the Community*, *20*(1-2), 103-119.

Pearson, J., Thoennes, N., Davis, L., Venohr, J., Price, D., & Griffith, T. (2003). *OCSE Responsible Fatherhood Programs: Client characteristics and program outcomes*. Denver, CO: Center for Policy Research.

Powell, D. R., Son, S. H., File, N., & San Juan, R. R. (2010). Parent–school relationships and children's academic and social outcomes in public school pre-kindergarten. *Journal of School Psychology*, *48*(4), 269-292.

Raffaele, L. M., & Knoff, H. M. (1999). Improving home-school collaboration with disadvantaged families: Organizational principles, perspectives, and approaches. *School Psychology Review*, *28*(3), 448-466.

Rimm Kaufman, S. E., Pianta, R. C., Cox, M. J., & Bradley, R. H. (2003). Teacher-rated family involvement and children's social and outcomes in kindergarten. *Early Education and Development*, *14*(2), 179-198.

Schultz, T. M. (2000). *School -family partnerships and children's academic development: Teacher and parent perspectives.* Unpublished Doctoral Dissertation, University of Illinois at Chicago, United States.

Sénéchal, M. (2006). Testing the home literacy model: Parent involvement in kindergarten is differentially related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure. *Scientific Studies of Reading*, *10*(1), 59-87.

Tavşancıl, E., & Aslan, E. (2001). *İçerik analizi ve uygulama örnekleri [Content analysis and application examples]*. İstanbul: Epsilon Yayıncılık.

Tezel Şahin, F., & Özbey, S. (2009). Okul öncesi eğitim programlarında uygulanan aile katılım çalışmalarında baba katılımının yeri ve önemi [The place and importance of father participation in family participation studies applied in preschool education programs]. *Sosyal Politika Çalışmaları Dergisi*, *5*(17), 30-39.

Tezel Şahin, F., & Turla, A. (2003). Okul öncesi eğitim kurumlarında yapılan aile katılımı çalışmalarının incelenmesi [Investigation of Family Participation Studies in Pre-School Education Institutions]. *OMEP Dünya Konsey Toplantısı ve Konferansı ve Bildiri Kitabı*, *1*, 379-392.

Tezel Şahin, F., & Ünver, N. (2005). Okul öncesi eğitim programlarına aile katılımı [Family participation in preschool education programs]. *Kastamonu Eğitim Dergisi*, *13*(1), 23-30.

Thompson, K. F. (2012). *The relationship between parent involvement beliefs of teachers and parent involvement training for teachers on perceived importance of parent involvement*. Unpublished Doctoral Dissertation, Walden University, United States.

Topor, D. R., Keane, S. P., Shelton, T. L., & Calkins, S. D. (2010). Parent involvement and student academic performance: A multiple mediational analysis. *Journal of Prev. & Interv. in the Community*, *38*(3), 183-197.

Toth, J. F., & Xu, X. (1999). Ethnic and cultural diversity in fathers' involvement a racial/ethnic comparison of African American, Hispanic, and White fathers. *Youth & Society*, *31*(1), 76-99.

Tutkun, C. (2017). *Fark yaratan babalar eğitim programının (FAYAB) babaların çocuklarıyla ilişkilerine, tutumlarına ve baba katılımına etkisi [The effect of fathers making a difference education program (FAYAB) on fathers' relations with their children, attitudes and father involvement]*. Unpublished Doctoral Dissertation, Gazi University, Ankara.

Ünüvar, P. (2010). Aile katılımı çalışmalarına yönelik ebeveyn ve öğretmen görüşlerinin karşılaştırılması [Comparison of parent and teacher views on family involvement studies]. *Kastamonu Eğitim Dergisi*, *18*(3), 719-730.

White, G. L., Briggs, H. E., Banks, L., Allen, J. L., & Lowe, T. B. (2023). Custodial and noncustodial parent predictors of noncustodial father involvement. *Research on Social Work Practice*, *33*(4), 491-505.

Wilson, K. R., Havighurst, S. S., & Harley, A. E. (2014). Dads tuning in to kids: Piloting a new parenting program targeting fathers' emotion coaching skills. *Journal of Community Psychology, 42*(2), 162-168.

Wilson, K. R., Havighurst, S. S., Kehoe, C., & Harley, A. E. (2016). Dads Tuning In to Kids: Preliminary Evaluation of a Fathers' Parenting Program. *Family Relations, 65*(4), 535-549.

Xu, Z., & Gulosino, C. A. (2006). How does teacher quality matter? The effect of teacher–parent partnership on early childhood performance in public and private schools. *Education Economics*, *14*(3), 345-367.

Yaşar Ekici, F. (2014). Okul öncesi eğitim kurumlarındaki aile katılım çalışmaları ve bu çalışmalara ilişkin yönetici öğretmen ve veli görüşleri [Family participation studies in pre-school education institutions and the opinions of administrators and parents about these studies]. *İZU Sosyal Bilimler Dergisi*, 2(4), 75-105.

Yıldırım, A. & Şimşek, H. (2011). *Sosyal bilimlerde nitel araştırma yöntemleri.* (8. Edition). Ankara: Seçkin Yayınevi.

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: July 25, 2023
Accepted: September 21, 2023
http://dergipark.org.tr/rep
e-ISSN: 2602-3733

September 2023 ◆ 7(2) ◆ 203-217
Research Article
https://doi.org/10.54535/rep.1332754

Career Engagement Scale: Examination of Turkish Psychometric Properties*

Faruk Caner Yam[1]

Tokat Gaziosmanpaşa University

Abstract

The aim of this study is to adapt Career Engagement Scale (CES) developed by Hirschi, Freund, and Herrmann (2013) into Turkish. The data of the study were collected from 500 (64.7% female) university students. First of all, exploratory factor analysis was performed, and, unlike the original form, a two-factor structure with an eigenvalue greater than 1 and explaining 63.58% of the total variance was obtained. Confirmatory factor analysis (CFA) was performed to examine the validity of the two-factor structure obtained in Exploratory Factor Analysis (EFA). The model fit indices (x2 = 73.924, df = 25 x^2/df =2.95, $p < .001$; GFI = .97, AFGI = .97 CFI = .98, RMR = .038; TLI = .95, IFI = .98, NFI = .97 and *RMSEA* = .063 %90 [.046-.079]) obtained as a result of the analysis reveal that the two-factor structure of the measurement tool was confirmed on Turkish samples. The internal consistency coefficients of CES were calculated as .88 for the whole scale, .84 for the proactive career planning dimension, and .83 for the career proactive skill development dimension. To examine the similar scale validity of CES, the correlation coefficient between the Vocational Outcome Expectations Scale (VOES), the Career Decision Regret Scale (CDRS), and the Satisfaction With Life Scale (SWLS) was calculated. As a result of the analysis performed, a significant positive correlation was found between CES and VOES ($r = .55$; $p < .01$) and SWLS ($r = .41$, $p < .01$). However, a significant negative correlation was found between CES and CDRS ($r = -.22$; $p < .05$). All these results show that the two-factor structure of CES has been validated on a Turkish sample and it is a valid and reliable scale.

Key Words

Adaptation • Career engagement • Career proactivity • Reliability • Validity

*This research is the extended version of the study presented as an oral presentation at II. International Learning Teaching and Educational Research Congress (5-7 September 2019, Amasya/Turkey), which was carried out by collecting new data.

[1] Tokat Gaziosmanpaşa University, Justice Vocational School, Tokat, Türkiye. E-mail: farukcaneryam@hotmail.com
ORCID: 0000-0001-8392-9576.

Citation: Yam, F.C. (2023). Career Engagement Scale: Examination of Turkish psychometric properties. *Research on Education and Psychology (REP), 7*(2), 203-217.

Introduction

Career is a concept that includes the professional development processes of individuals throughout their lives and includes choosing a profession, progress in this profession, pauses, and regression periods (Kuzgun, 2013). In other words, a career is a complex pattern formed by the interaction of the roles that individuals undertake throughout their lives (Super, 1953). For this reason, career development is considered an inseparable part of individuals' lifetimes (Ginzberg, 1957). Because the professions chosen by individuals comprise a large part of their life, career development continues throughout the individual's entire life (Super, 1980). Career choice is considered an important developmental task for individuals (Kuzgun, 2013). Therefore, many theories have tried to provide specific explanations for career choice and career decision-making processes. Some theories state that individuals characteristics should be matched with the features of professions (Parsons, 1989), some approaches should direct individuals to professions that are suitable for their personalities (Holland, 1997), and some theories state that career choices should be made according to the self-concept (Super, 1953).

With the changes in career development paradigms and job placement processes in recent years, it has started to be discussed that it is not enough to direct and place an individual in a certain profession (Strauss et al., 2012). When the career literature is examined, it is observed that they focus on situational processes such as career decision-making behaviors, career maturity, career choice, and professional outcome expectation (Büyükköze-Kavas, 2012; Eryılmaz & Kara, 2018; Fidan, Fidan & Öztürk, 2018; Kalafat, 2012; Light, 2013). These studies mostly examined the factors that affect individuals while reaching a professional decision in terms of placement in a particular profession, decision making, and developmental points of view. Today, however, it is not enough for individuals to make a career choice alone, as well as actively participate in the development of their chosen careers and exhibit positive career behaviors (Parker & Collins, 2010). Considering that it is important for individuals to have self-control about their careers in our age, it is stated that taking the responsibility for one's career development, preparing for business life, and making various researches about working life will play a significant role in the advancement of the individual's career steps. (Hall, 2002; Rottinghaus et al., 2005).

Due to the changes in career development processes in the last two decades, individuals are expected to take on more responsibilities in managing their careers successfully (De Vos et al., 2009; Rottinghaus et al., 2005; Strauss et al., 2012). Career engagement, a new concept that explains this process, is defined as an individual's proactive (constructive) behavior at all stages of career development (Hirschi & Freund, 2014). In other words, career engagement is expressed as individuals taking an active and constructive role in the planning, research and evaluation stages of careers processes. (Hirschci, 2013; Hirschci et al., 2013). Within this concept, individuals not only have the responsibility to receive the education of the profession they have chosen, but also to conduct research that will contribute to the career development of the individual, to create various networks, to plan their career goals, to search for career opportunities (including the period of university education) by themselves, has responsibilities such as taking on various tasks for career development autonomously (Thomas et al., 2010, Wolff et al., 2011).

Although the examination and evaluation of situational facts about individuals' career processes (career maturity, career decision, career regret, career self-efficacy, etc.) are useful for determining the career development levels of individuals, their contribution to the continuity of career development cannot be fully explained (Hirschi et al.,

2013). For this reason, it is important for individuals who have reached a career decision or who are considered to be at a sufficient level of career maturity, to play a conscious and active role in this process to continue their career development successfully. When the literature is examined, various measurement tools evaluate the career development processes of individuals. For example, the Career Research Self-Efficacy Scale (2017), the Career Decision Scale (Büyükköze-Kavas, 2012), the Discrepancies Between Individual-Set and Parent-Set Career Goals Scale (Köksal & Yam, 2023), the Professional Outcome Expectation (Işık, 2010), the Career Stress Scale (Özden & Sertel-Berk, 2017), the Career Goal Discrepancies Scale (Yam et al., 2020), and the Career Decision Regret Scale (Erdurcan& Kırdök, 2017). However, when the literature is examined, no measurement tool has been found that evaluates the career proactive behaviors of individuals. Therefore, this study is aimed at conducting a Turkish validity and reliability study of the Career Engagement Scale developed by Hirschi, Freund, and Herrmann (2013).

Method

Participants and Procedure

Data were collected from a total of 530 university students in the data collection process. Eighteen participants who filled in the data collection tools incompletely or incorrectly were excluded from the data set. In addition, the box plot graph was examined for the extreme values in the data set and it was seen that twelve data were outliers and these data were excluded from the data set. The research was continued with data from the remaining 500 university students (326 (65.2%) female, 174 (34.8%) male). The ages of the participants range from 18 to 28 ($\bar{x}$ = 21.24; Ss = 1.63). The grade levels of the participants ranged from 1st grade to 4th. The data of the study were collected online. An informed consent form about the content of the study was sent to the participants. During the data collection process, no private data was collected that would violate the privacy of the participants. The data collection process was carried out on a voluntary basis.

Translation Study of the Scale into Turkish

In the first stage, permission was obtained for the adaptation via email with the first author, Andreas Hirschi, from the authors who developed the scale. In the second stage, the English form of the scale, for which permission was obtained, was sent to three English language experts and a translation study was carried out (Brislin, 1970). In the third stage, the feedback from three English language experts was brought together in a table and sent to two field experts. In the fourth stage, a draft scale form was created by bringing together the most appropriate item translations by the field experts. In the fifth stage, the draft form of the scale was sent to a Turkish language expert to be examined in terms of Turkish grammar and intelligibility. A pilot application was made to a group of ten students who knew both English and Turkish to test whether the scale form, which was created at the end of the feedback, was understandable in terms of language. Correlation (r = .91; p < .001) and dependent t-test analysis (t = .723; p > .05) were used to examine the relationship between the scores obtained from the two applications. These results indicated that the Turkish form of the scale was understandable.

Data Collection Tools

Career Engagement Scale (CES): The measurement tool, which will be adapted, consists of a single dimension of nine items developed by Hirschi, Freund, and Herrmann (2013). This measurement tool is a five-point scale (1 = not

much, 5 = a lot) type measurement tool that evaluates the active participation levels of individuals in their career development. Model fit indices obtained as a result of confirmatory factor analysis of the original form of the scale revealed that the structure of the scale was confirmed (x^2 = 324.79, *df* = 27, $p < .01$; TLI = .94; CFI = .96; RMSEA = .07). In addition, the researchers calculated the internal consistency coefficient (Cronbach's Alpha) of the scale as .87.

Vocational Outcome Expectations Scale (VOES): The measurement tool developed by McWhirter, Rasheed, and Crothers (2000) was adapted into Turkish by Işık (2010). The VOE assesses individuals' beliefs in their careers and the professional success they want to achieve in the future. The model fit values (GFI = .92, CFI =.96, *RMSEA* =.054, and SRMR=.053) obtained in the adaptation study by Işık (2010) revealed that the measurement tool was validated on the Turkish sample. In the adaptation study, the internal consistency coefficient (Cronbach's Alpha) of the scale was calculated as .87. Cronbach's alpha internal consistency coefficient calculated on the data collected in the current study was found to be sufficient (*a* =.91).

Career Decision Regret Scale (CDRS): CDRS, which was developed by Brehaut et al (2003) and adapted into Turkish by Erdurcan and Kırdök (2017), evaluates the regret levels of individuals regarding their preferred career choices. The CRDS consists of five items and one dimension. In the adaptation studies, the model fit values of the measurement tool (x^2/df = 2.545, *RMSEA* = .06, AGFI = .96, CFI = .99, IFI = .99; GFI = .99, SRMR = .013) were found to be on the Turkish sample. proved to be confirmed. In the adaptation study, the researchers found the internal consistency coefficient (Cronbach's Alpha) .91, which they calculated over the data obtained from the Turkish sample. Cronbach's alpha internal consistency coefficient calculated on the data collected in the current study was found to be sufficient (*a* =.90).

The Satisfaction With Life Scale (SWLS): The SWLS is a measurement tool developed by Diener et al. (1985) and adapted into Turkish by Dağlı and Baysal (2016) and evaluating the general satisfaction levels of individuals with their lives. The scale consists of five items and participants respond using a five-point Likert scale (1-strongly disagree, 5-strongly agree). The adaptation study revealed that the model fit indices (x^2/df=1.17, *RMSEA* = .030, AGFI = .97, GFI = .99, CFI = 1.00, SRMR = .019) of the scale confirmed the structure of the scale. In the adaptation study, the researchers found the internal consistency coefficient (Cronbach's Alpha) .88, which they calculated over the data obtained from the Turkish sample. Cronbach's Alpha internal consistency coefficient calculated on the data collected in the current study was found to be sufficient (*a* =.86).

Data Analysis

Exploratory and confirmatory factor analysis was used to examine the construct validity of the Career Engagement Scale. Kaiser-Meyer-Olkin (KMO) and Bartlett Test are used to determine whether the data is suitable for EFA. While the Bartlett Test is expected to be significant, over 0.80 is accepted as an excellent value for KMO (Büyüköztürk, 2002). In addition, item loads must take values of .30 or higher. If an item has significant factor loading in more than one dimension, the difference between the values of factor loadings should be greater than .10. Otherwise, it is considered as an overlapping item and this item is excluded from the analysis. A scree plot graph was used to determine the number of factors. In addition, while determining the number of factors, the condition that the

eigenvalues should be greater than 1 was taken into account. Rotation methods in factor analysis are collected in two groups as orthogonal and obique. Orthogonal rotation methods are recommended to be used in cases where there is no relationship between factors, and obique rotation methods are recommended when there is a relationship between factors (Field, 2009). It is assumed that there is a relationship between the factors of the adapted CES in the study. For this reason, promax was preferred in oblique rotation methods in this study. The results of the confirmatory factor analysis results were evaluated according to the model fit index (χ^2/df, RMSEA, CFI, IFI, TLI, NFI). While examining the confirmatory factor analysis results goodness of fit values, $\chi^2/df < 5$; GFI, NFI, TLI, CFI > .90; *RMSEA* < .10 values were taken as basis for good fit (Hu & Bentler, 1999). On the other hand, to examine similar scale validity, the correlation coefficient between the Career Engagement Scale with VOE, CDRS, and SWLS was calculated. In addition, in order to test the distinctiveness of the Turkish version of the CES, whether the difference between the 27% lower-upper group mean scores was significant or not was examined with the independent group t-test. Internal reliability coefficients (Cronbach's Alpha) of all measurement tools used in the adaptation study were calculated.

Results

Exploratory Factor Analysis (EFA) Results

In the research, first of all, confirmatory factor analysis was performed by preserving the original structure of the scale. However, as a result of this analysis, it was observed that the existing structure had low fit indices. Then, the proposed modification suggestions (MI) were examined and it was seen that the model fit indices became perfect when the covariance was established between item 8 and item 9, item 7 and item 9, item 7 and item 8, item 6 vs item 8, item 6 and item 7. However, when the literature is examined, it is stated that it is not a correct approach to try to validate a model with low model fit indices as a result of confirmatory factor analysis by using too many modification indices (Schmitt, 2011). For this reason, it is stated that exploratory factor analysis is a more appropriate approach instead of making many changes in structures that show poor fit as a result of confirmatory factor analysis (Schmitt, 2011). First, exploratory factor analysis was performed on the collected data. Before factor analysis, the scale was Kaiser-Meyer-Olkin (KMO=0.90) and Barlett Test of Sphericity (χ2= 2074.450, df=36 (p < .001). As a result of the analysis, the data were found to be suitable for exploratory factor analysis. The Career Engagement Scale revealed a two-factor structure. The scree plot graph of this result is presented in Figure-1.

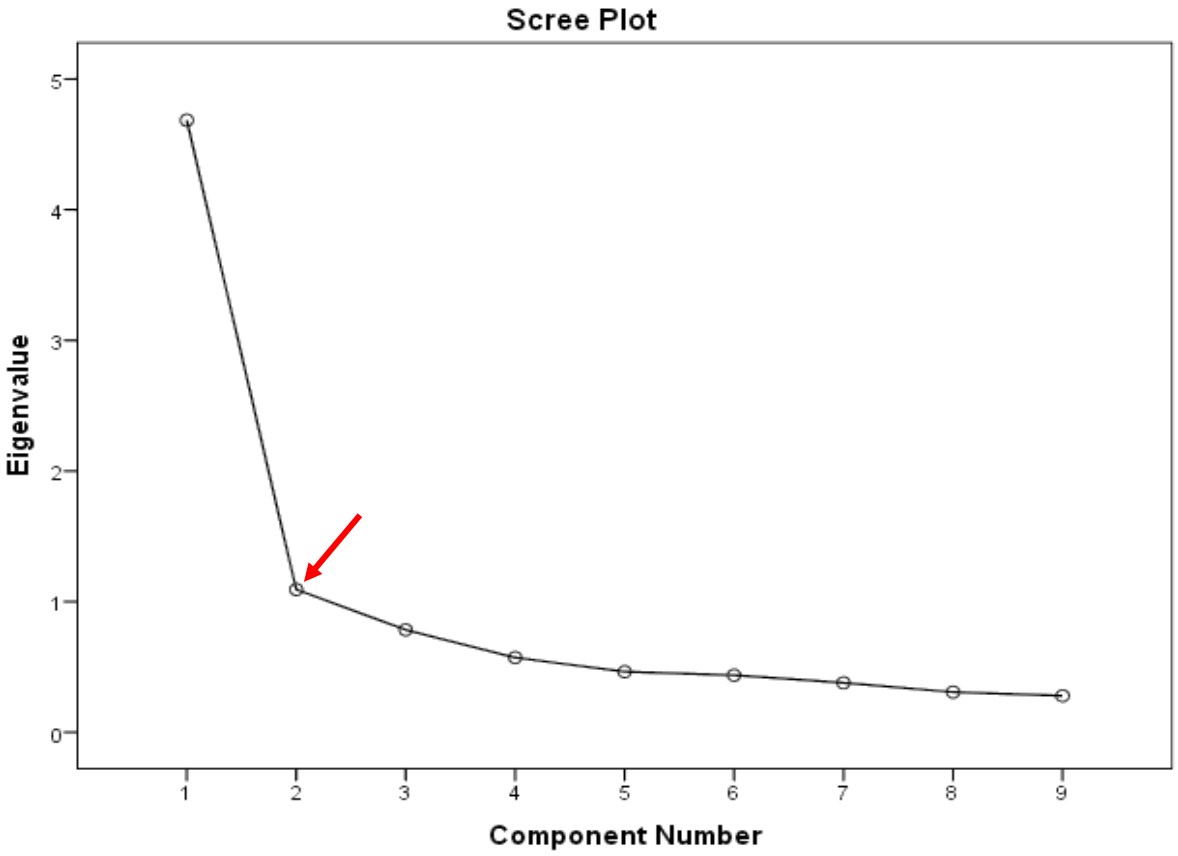


Figure 1. Scree Plot Graph

When Figure 1 is examined, it is seen that after the second factor, the other parts follow a horizontal course together. As a result of the EFA, a two-dimensional structure with factor loads ranging from .554 to .916 and eigenvalues greater than 1 explaining 63.58% of the total variance was obtained. There was no overlapping item loaded on both dimensions. The item factor loads of the CSE are presented in Table 1.

Table 1

Item Factor Loads of CSE

Items	**Factors**	
	***F1 (Planning and Evaluation)**	***F2 (Research and Networking)**
CES1: Gelecekteki kariyerimi aktif bir şekilde tasarlamaya çalışırm.	.885	
CES2: Kariyer hedeflerime ulaşabilmek için bazı şeyler (girişimde bulunmak, zorlukları yönetmek vb.) üstlenirim.	.775	
CES3: Kariyer gelişimime özen gösteririm.	.916	
CES4: Gelecekteki kariyerim için hedefler belirleyip, planlamalar yaparım.	.759	
CES5: Kişisel değerlerim, ilgi alanlarım, yeteneklerim ve zayıf olduğum yönlerim hakkında gerçekçi bir şekilde düşünürüm.	.554	
CES6: Çalışmak istediğim alandaki işverenler, mesleki gelişim fırsatları veya iş piyasası hakkında bilgiler toplarım.		.634
CES7: Bana mesleki olarak yardım edebilecek insanlarla iletişim kurup, bu iletişimi sürdürürüm.		.854
CES8: Kariyerimi desteklemek için ileri düzeyde eğitim, öğretim ve benzeri etkinliklere gönüllü olarak katılırım.		.876
CES9: Kariyer gelişimime yardım edecek sorumluluklar ya da görevler üstlenirim.		.772
Eigenvalues	4.605	1.118
%Variance	%51.16	%12.42
%Total Explained Variance	%63.58	
*Promax Rotation		

When Table 1 is viewed, it is seen that the CSE has two factors with an eigenvalue greater than 1, item factor loads vary between .55 and .92, and the scale has an explanatory power of 63.48% of the total variance. In the exploratory factor analysis, it is stated that the total variance ratio explained for scale structures with more than one factor is between 40% and 60% (Tavşancıl, 2002). According to this explanation, it can be stated that the current scale has sufficient variance explanatory power.

Confirmatory Factor Analysis (CFA) Results

The two-factor structure obtained in exploratory factor analysis was tested with confirmatory factor analysis. CFA analysis was performed and the model fit indices (x2 = 73.924, df = 25 x2/df = 2.95; p<.001, GFI = .97, AFGI

= .97, CFI = .98, RMR = .038; TLI=.95, IFI = .98, NFI=97 ve RMSEA=.063 %90[.046-.079]) obtained showed that the two-factor structure was confirmed. The path diagram of the first level DFA performed is shown in Figure 2.

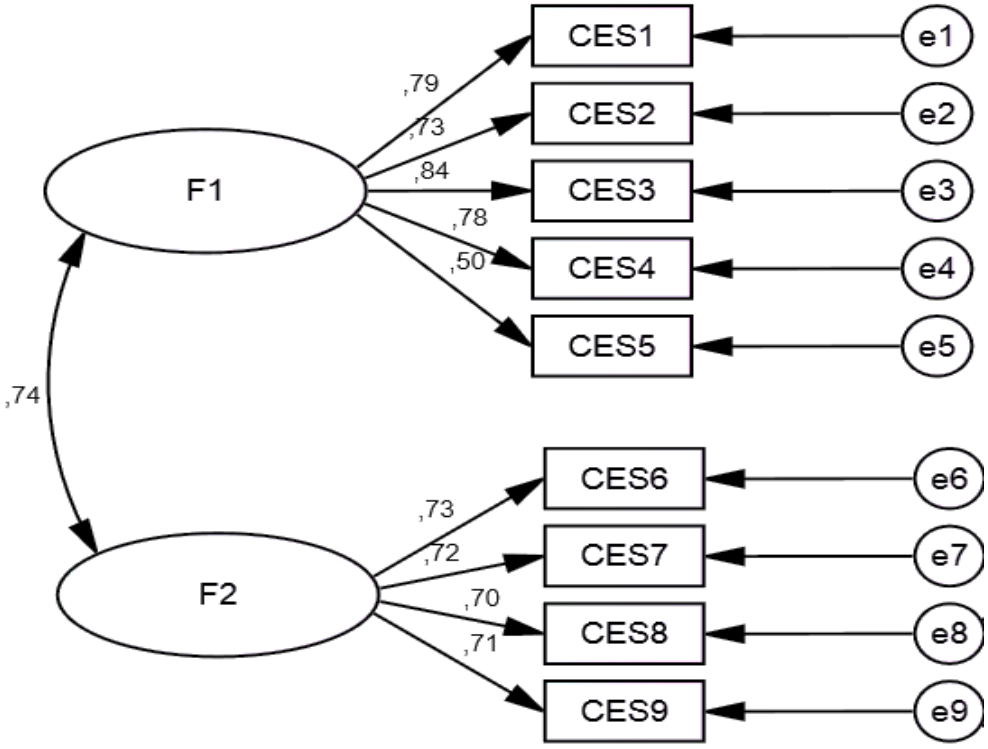


Figure 1. Confirmatory Factor Analysis Path Diagram

Reliability Analysis Results

The internal consistency coefficient (Cronbach's Alpha) was calculated to determine the reliability level of the adapted CES. The internal consistency coefficients (Cronbach's Alpha) calculated for the CES were found to be .88 for the whole scale, .84 for the proactive career planning sub-dimension, and .83 for the proactive career skill development sub-dimension. In addition, the internal consistency coefficients calculated for the measurement tools used for similar scale validity in the study were found to be .91 for VOE, .89 for CDRS, and .86 for SWLS.

Results on Internal Criterion-Based Validity

In order to evaluate the internal criterion-based validity of the CES, it was examined whether the difference between the 27% lower group and upper group mean scores was significant. For this, independent groups t-test analysis was performed. According to the result of the analysis ($\bar{X}_{lower}$ = 23.22, $\bar{X}_{upper}$ = 39.47; t = -40.41; $p < .001$), the difference between the 27% lower group and upper group mean scores was found to be significant. One of the important indicators of the construct validity of a scale is that it has concordance and discriminant validity. Composite Reliability (CR) and Average Variance Extracted (AVE) values are taken into account to evaluate concordance and discriminant validity. For this reason, CR and AVE coefficients were calculated to examine the concordance validity. It is stated that the Ave coefficient should be greater than .50 (Fornell & Larcker, 1981), and

the CR coefficient should be greater than .60 and .70 (Fornell &Larcker, 1981; Hair et al., 2011). Calculated as CR =.91 and AVE = .53 over all items of CES. Similarly, CR = .85, AVE = .54 for the proactive career planning sub-dimension, and CR = .81, AVE = .52 for the proactive career skill development sub-dimension.

Results on Criterion-Related Validity

To examine the similar scale validity of CES, the correlation coefficient between the Vocational Outcome Expectations Scale (VOES), Career Decision Regret Scale (CDRS), and The Satisfaction With Life Scale (SWLS) was calculated. As a result of the analysis performed, a significant positive correlation was found between CES and VOES (r = .55; p < .01) and SWLS (r =.41, p < .01). However, a significant negative correlation was found between CES and CDRS (r = -.22; p < .05). These results indicate that CES provides criterion- related validity.

Discussion

In this study, the validity and reliability study of the Turkish form of the Career Engagement Scale consisting of 9 items and a single dimension developed by Hirschi, Freund, and Herrmann (2013) was conducted. In the study, primarily exploratory factor analysis was performed, and unlike the original form, two-dimensional structure with an eigenvalue greater than 1 and explaining 63.58% of the total variance was obtained. This differentiation can be thought to be caused by the differences in Turkish culture related to career development processes. From the exploratory factor analysis, it is seen that the factor loads vary between .55 and .92. It is stated that factor loads should be greater than .31 in exploratory factor analyzes (Çokluk et al, 2012). It is seen that the factor loads obtained as a result of the exploratory factor analysis performed in this study are above the limit recommended in the literature. Confirmatory factor analysis (CFA) was performed to examine the validity of the two-factor structure obtained in EFA. The model fit indices (x^2 = 73.924, df = 25 x^2/df =2.95; p < .001, GFI = .97, AFGI = .97 CFI = .98, RMR = .038; TLI = .95, IFI = .98, NFI. =97 ve *RMSEA*=.063 %90 [.046-.079]) obtained as a result of the analysis reveal that the two-factor structure of the measurement tool was confirmed on Turkish samples. The findings obtained as a result of confirmatory factor analysis are within the limits recommended in the literature and these results show that the measurement tool provides construct validity (MacCallum et al., 1996; Hu & Bentler,1999; MacCallum et al., 1996; Tabachnick & Fidell, 2013). The internal consistency coefficient (Cronbach's Alpha) was calculated to determine the reliability level of the adapted CES. The internal consistency coefficients (Cronbach's Alpha) calculated for the CES were found to be .88 for the whole scale, .84 for the proactive career planning sub-dimension and .83 for the proactive career skill development sub-dimension. It is stated that the internal reliability coefficients of measurement tools should be .70 and above (De Vellis, 2012). Considering this explanation, it can be said that CES is above the recommended limit in the literature and is a reliable measurementool tooto evaluate the validity of the Career Participation Scale based on internal criteria, independent groups t-test was conducted to understand whether the difference between the 27% lower group and upper group mean score was significant. According to the result of the analysis ($\bar{X}_{lower}$ = 23.22, $\bar{X}_{upper}$ = 39.47; t = -40.41; p < .001), the difference between the 27% lower group and upper group mean scores was found to be significant. According to this result, it can be stated that CES is a measurement tool that can measure desired features and has distinctiveness. One of the important indicators of the construct validity of a scale is that it has concordance and discriminant validity. For this reason, CR and AVE coefficients were calculated to examine the concordance validity. It is stated that the Ave coefficient

should be greater than .50 (Fornell & Larcker, 1981), and the CR coefficient should be greater than .60 and .70 (Fornell & Larcker, 1981; Hair et al., 2011). Calculated as CR =.91 and AVE = .53 over all items of CES. Similarly, CR = .85, AVE = .54 for the proactive career planning sub-dimension, and CR = .81, AVE = .52 for the proactive career skill development sub-dimension. According to these results, it can be said that CES has concordance and discriminant validity. To examine the similar scale validity of CES, the correlation coefficient between the Vocational Outcome Expectations Scale (VOES), the Career Decision Regret Scale (CDRS), and the Satisfaction With Life Scale (SWLS) was calculated. As a result of the analysis performed, a significant positive correlation was found between CES and VOES (r = .55; p < .01) and SWLS (r =.41, p < .01). However, a significant negative correlation was found between CES and CDRS (r = -.22; p < .05). These results reveal that CES provides criterion-related validity. When all these results above are evaluated together, it can be concluded that CES is a valid and reliable measurement tool.

Limitations and Future Research

This study includes some limitations. Primarily, the original study of the scale was carried out with data collected from both employees and university students. However, in the current study, only the data collected from university students were analyzed. This situation creates a limitation in terms of the use of the measurement tool in Turkish culture. Secondly, data were collected by the self-report method. Therefore, it is subject to all kinds of prejudices. Finally, the data of this study were collected from students studying at a university. For this reason, care should be taken when generalizing to all groups (different regions, university, faculty, department, etc.) in other studies.

The validity and reliability study of this measurement tool was carried out on the data obtained from university students. In another study, an adaptation study can be made on the data obtained from individuals working in Turkish culture, as in the original scale. In addition, the high school period is critical in terms of carrier development and carrier decision. In this period, determining and supporting the self-control of individuals over their career development is an important issue. Therefore, in another study, an adaptation of CES can be carried out on a sample group consisting of high school students. On the other hand, in this study, it was seen that there is a positive relationship between career engagement, vocational outcome expectation, and life satisfaction, and a negative relationship between career decision regret. For this reason, in another research to be conducted in the future, a modeling study that examines the factors affecting the career engagement levels of university students can be conducted.

Conclusion

In the current study, the structure of the Career Engagement Scale, which is a measurement tool related to the concept of career participation, which is a new field of study, was verified through the data obtained from the Turkish sample. However, while the original CES had a single-factor structure, a two-factor structure emerged in the Turkish adaptation study, and this structure was confirmed. In addition, reliability analyses, internal criterion validity, and criterion association validity results indicate that CES will give valid and reliable results in future studies. Finally, thanks to this study, a short and economical measurement tool that evaluates the career proactive behaviors of individuals has been brought into Turkish culture. In addition, a similar scale validity was found to have

a positive and significant relationship between career participation, professional outcome expectation, and life satisfaction. This result indicates that university students' career engagement levels may have a positive impact on their vocational outcome expectations and life satisfaction. On the other hand, it was concluded that there is a negative significant relationship between career engagement and regret for professional decisions. This result shows that the level of career engagement of university students can be a preventative source against regret in their career choices. Finally, thanks to this study, a short and useful measurement tool that evaluates the career proactive behaviors of individuals has been brought into Turkish culture.

Ethical Approval

All procedures in this study involving human participants were conducted in accordance with the ethical standards of the 1975 Helsinki Declaration and were approved by the research team's university ethics committee.

Informed consent

Informed consent was obtained from all participants before the study.

Conflict of Interest

The author(s) declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Corresponding author' statement

This research is the extended version of the study presented as an oral presentation (at II. International Learning Teaching and Educational Research Congress (5-7 September 2019, Amasya/Turkey), which was carried out by collecting new data.

References

Bacanlı, F. (2006). Kariyer araştırma yetkinlik beklentisi ölçeği: geçerlik ve güvenirlik çalışmaları. *Kuram ve Uygulamada Eğitim Bilimleri, 6*(2), 301-330.

Brehaut J. C., O'Connor, A. M., Wood, T. J., Hack, T. F., Siminoff, L., Gordon, E. ve Feldman-Stewart, D. (2003). Validation of a decision regret scale. *Medical Decision Making, 23*(4), 281-292. https://doi.org/10.1177/0272989X03256005

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology, 1(*3), 185-216. https://doi.org/10.1177/135910457000100301

Büyükgöze-Kavas, A. (2012). Turkish adaptation of career decision scale: Validity and reliability study. *Turkish Psychological Counseling and Guidance Journal*, *4*(38), 159-168.

Büyüköztürk, Ş. (2002). Faktör analizi: Temel kavramlar ve ölçek geliştirmede kullanımı. *Kuram ve Uygulamada Eğitim Yönetimi, 32*(32), 470-483.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822-848. https://doi.org/10.1037/0022-3514.84.4.822

Çelik, H. E. ve Yılmaz, V. (2013). *Yapısal eşitlik modellemesi temel kavramlar, uygulamalar ve programlama*. Anı Yayıncılık.

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2012). *Sosyal bilimler için çok değişkenli istatistik: SPSS ve LISREL uygulamaları* (2. Basım). Pegem Akademi.

Diener, E., Emmons, R. A., Larsen, R. J. and Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49* (1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

DeVellis, R. F. (2012). Scale development: Theory and applications (3rd ed.). Sage Publications.

De Vos, A., De Clippeleer, I., & Dewilde, T. (2009). Proactive career behaviours and career success during the early career. *Journal of Occupational and Organizational Psychology, 82*, 761–777. https://doi.org/10.1348/096317909X471013

Eryilmaz, A., & Kara, A. (2020). Investigation of the effectiveness of a career adaptability program for prospective counsellors. *Current Psychology*, *39*(4), 1260-1268. https://doi.org/10.1007/s12144-018-9827-5

Erdurcan, S., & Kırdök, O. (2017). Career desicion regret scale: Adaptation, Validity and reliability study. *Mersin University Journal of the Faculty of Education*, *13*(3), 1140-1150. https://doi.org/10.17860/mersinefd.330880

Erdoğmuş-Zorver, C., & Korkut-Owen, F. (2011). *Kariyer uyumu ve iyimserliği ölçeğinin geliştirilmesi*. Yayınlanmamış yüksek lisans tezi. Eğitim Bilimleri Enstitüsü, Ankara Üniversitesi, Ankara.

Fidan, T., Fidan, İ. Ö. ve Öztürk, H. (2018). Factors affecting career choice and career expectations of the vocational school students and graduates: The mediating role of self-efficacy. *Journal of Higer Education*, *8(*3), 249-263. https://doi.org/10.2399/yod.18.008

Field, A. (2009). *Discovering statistics using SPSS*.(thrid edition). SAGE.

Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39-50. https://doi.org/10.1177/002224378101800104

Fouad, N.A., Guillen, A., Harris-Hodge, E., Henry, C., Novakovic, A., Terry, S.(2006). Need, awareness, and use of career services for college students. *Journal of Career Assessment, 14*, 407-420. https://doi.org/10.1177/1069072706288928

Germer, C. K., Siegel, R. D., & Fulton, P. R. (2005). *Mindfulness and psychotherapy*. Guilford.

Gould, S., & Penley, L. E. (1984). Career strategies and salary progression: A study of their relationships in a municipal bureaucracy. *Organizational Behavior and Human Performance, 34*, 244–265. https://doi.org/10.1016/0030-5073(84)90006-0

Giznberg, E. (1957). Toward a theory of occupational choice. *Personal and Guidance, 30,* 491-494. https://doi.org/10.1002/j.2164-5892.1952.tb02708.x

Hall, D. T. (2002). *Careers in and out of organizations.* Sage.

Heckhausen, J., & Tomasik, M. J. (2002). Get an apprenticeship before school is out: How German adolescents adjust vocational aspirations when getting close to a developmental deadline. *Journal of Vocational Behavior, 60*, 199–219. https://doi.org/10.1006/jvbe.2001.1864

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: indeed a silver bullet. Journal of Marketing *Theory and Practice, 19*(2), 139–151. https://doi.org/10.2753/MTP1069-6679190202

Hirschi, A., & Freund, P. A. (2014). Career engagement: Investigating intraindividual predictors of weekly fluctuations in proactive career behaviors. *The Career Development Quarterly*, *62*(1), 5-20. https://doi.org/10.1002/j.2161-0045.2014.00066.x

Hirschi, A., Freund, P. A., & Herrmann, A. (2014). The career engagement scale: Development and validation of a measure of proactive career behaviors. *Journal of Career Assessment*, *22*(4), 575-594. https://doi.org/10.1177/1069072713514813

Hirschi, A. (2013). Career decision making, stability, and actualization of career intentions: The case of entrepreneurial intentions. *Journal of Career Assessment*, *21*(4), 555-571. https://doi.org/10.1177/1069072712475287

Hirschi, A., Lee, B., Porfeli, E. J., & Vondracek, F. W. (2013). Proactive motivation and engagement in career behaviors: Investigating direct, mediated, and moderated effects. *Journal of Vocational Behavior, 83*(1), 31-40. https://doi.org/10.1016/j.jvb.2013.02.003

Hirschi, A., & Jaensch, V. K. (2015). Narcissism and career success: Occupational self-efficacy and career engagement as mediators. *Personality and Individual Differences, 77*, 205-208. https://doi.org/10.1016/j.paid.2015.01.002

Hu, L. & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments.* Psychological Assessment Resources.

Işık, E. (2010). *Effects of a social cognitive career theory-based group intervention on career decision self efficacy and vocational outcome expectations among undergraduate students.* Doctoral thesis. Çukurova University, Institute of Social Sciences, Adana.

Kalafat, T. (2012). Career futures ınventory (CFI): The examination of psychometric properties in Turkish sample. *Turkish Psychological Counseling and Guidance Journal, 4*(38), 169-179.

Kline, T. J. B. (2005). *Psychological testing: A practical approach to design and evaluation.* Thousand Oaks: Sage Publications Inc.

Kim, B., Jang, S. H., Jung, S. H., Lee, B. H., Puig, A., & Lee, S. M. (2014). A moderated mediation model of planned happenstance skills, career engagement, career decision self-efficacy, and career decision certainty. *The Career Development Quarterly, 62*(1), 56-69. https://doi.org/10.1002/j.2161-0045.2014.00070.x

Köksal, B., & Yam, F. C. (2023). A measurement tool foreEvaluating career goal inconsistencies between individuals and parents: A validity and reliability study of the Turkish version. *Turkish Psychological Counseling and Guidance Journal, 13*(68), 1-10. https://doi.org/10.17066/tpdrd.1271212b

Kuzgun, Y. (2003). *Meslek rehberliği ve danışmanlığına giriş.* Nobel Yayın Dağıtım.

MacCallum, R. C., Brown, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*, 130-149. https://doi.org/10.1037/1082-989X.1.2.130

McWhirter, E. H., Crothers, M., & Rasheed, S. (2000). The effects of high school career education on social–cognitive variables. *Journal of Counseling Psychology, 47*(3), 330. https://doi.org/10.1037/0022-0167.47.3.330

Meydan, C. H. ve Şeşen, H. (2015). Ya*pısal eşitlik modeli amos uygulamaları*. Detay Yayıncılık.

Özden, K. (2014). *Psychosocial predictors of psychological well-being in university students based on social cognitive career theory.* Master's thesis. İstanbul Arel University Institute of Social Sciences, İstanbul.

Özden, K., & Sertel-Berk, Ö. (2017). Reliability and validity study of Turkish version of the Korean career stress inventory (KCSI). *Studies in Psychology, 37*(1), 35-51.

Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management, 36*(3), 633-662. https://doi.org/10.1177/0149206308321554

Rottinghaus, P. J., Day, S. X., & Borgen, F. H. (2005). The Career Futures Inventory: A measure of career-related adaptability and optimism. *Journal of Career Assessment, 13*(1), 3-24. https://doi.org/10.1177/1069072704270271

Schmitt, T. A. (2011). Current methodological considerations in exploratory and confirmatory factor analysis. *Journal of Psychoeducational Assessment, 29*(4), 304-321.

Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior, 16*(3), 282-298. https://doi.org/10.1016/0001-8791(80)90056-1

Super, D. E. (1953). A theory of vocational development. *American Psychologist, 8*(5), 185. https://doi.org/10.1037/h0056046

Strauss, K., Griffin, M. A., & Parker, S. K. (2012). Future work selves: How salient hoped-for identities motivate proactive career behaviors. *Journal of Applied Psychology, 97*, 580–598. https://doi.org/10.1037/a0026423

Sarı, S. V., Yazıcı, H., & Şahin, M. (2017). Psychometric properties of the CSES in Turkish university students. *Kastamonu Education Journal, 25*(5), 1715-1728.

Şencan, H. (2005). *Sosyal ve davranışsal ölçümlerde güvenilirlik ve geçerlilik.* Seçkin Yayınevi.

Şimşek, Ö. F. (2007). *Yapısal eşitlik modellemesine giriş:(temel ilkeler ve LISREL uygulamaları).* Ekinoks Yayınevi.

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics (Vol. 5).* Pearson.

Tabachnick, B. G., & Fidell, L. S. (2013). Using Multivariate Statistics (6.baskı). Pearson.

Thomas, J. P., Whitman, D. S., & Viswesvaran, C. (2010). Employee proactivity in organizations: A comparative meta-analysis of emergent proactive constructs. *Journal of Occupational and Organizational Psychology, 83*, 275–300. https://doi.org/10.1348/096317910X502359

Yam, F. C., Alkın, S., & Barut, Y. (2020). Adaptation of career Goal Discrepancies Scale to Turkish: Validity and reliability study. *İş ve İnsan Dergisi, 7*(1), 23-32. https://doi.org/10.18394/iid.629970

Wolff, H.-G., Schneider-Rahm, C. I., & Forret, M. L. (2011). Adaptation of a German multidimensional networking scale into english. *European Journal of Psychological Assessment, 27,* 244–250. https://doi.org/10.1027/1015-5759/a000070

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: July 29, 2023
Accepted: September 22, 2023
http://dergipark.org.tr/rep
e-ISSN: 2602-3733

September 2023 ◆ 7(2) ◆ 218-234
Research Article
https://doi.org/10.54535/rep.1334520

Studies about Individual Life Structure: A Meta-Synthesis Study

Yahya Aktu[1]

Siirt University

Abstract

Adulthood period, which forms the most satisfying and wearing years of life psychologically, has been defined by many theorists. One of these theorists is Levinson, who developed the theory of Life Structure. There is a need for investigating the studies about life structure in a developmental process from a holistic and systematic point of view in order to learn what the studies about life structure enhance in adult individuals' life. In this regard, the purpose of this study is to investigate how adult people's life structures are shaped in the transition periods and the factors that affect their career developments in the qualitative studies about life structure. This study that is qualitative in nature is based on meta-synthesis approach. The data used in the study were composed of 12 qualitative studies selected using criterion sampling method. Based on the research in academic databases, the data were subjected to thematic content analysis methods in order to obtain common themes from the findings of the primary qualitative studies. The results of this study revealed four sub-themes and eight categories related to the themes of transition periods and career development.Results of the studies indicated that adult people experienced changes in their sense of self and life goals in a transition period they were in. Adult people who are in a transition period are determined to give a special place to their hobbies while they are shaping their life structures. Finally, factors affecting success in adult individuals' career development were found to be mainly intrinsic motivation and a mentor.

Key Words

Individual life structure • Meta-synthesis • Transition period • Career development

[1] **Correspondance to:** Siirt University, Eruh, Siirt. E-mail: aktuyahya@gmail.com **ORCID:** 0000-0002-5540-7399

Citation: Aktu, Y. (2023). Studies about individual life structure: A meta-synthesis study. *Research on Education and Psychology (REP), 7*(2), 218-234.

With the increase in the life expectancy worldwide (Türkiye İstatistik Kurumu [TÜİK], 2016), the interest shown to childhood years seems to increasingly move to the adulthood periods. Researchers in the fields of psychology and education are currently seeking answers to questions about how individuals deal with the challenges they experience in adulthood, the changes that occur in career development over the years, how life goals evolve in adulthood, and the factors that shape adults' lives. This necessitates a greater focus on the phases that adult individuals go through.It is reported that there are various tasks that need to be achieved in the adulthood period, which is addressed in the framework of lifelong development approach (Bühler, 1969; Erikson, 1984; Gould, 2002; Havinghurst, 1972). Levinson is one of the theorists who attempted to provide a different point of view regarding what these tasks are and how they are accomplished. Levinson's Individual Life Structure theory distinguishes itself in several ways from the theories of Bühler, Gould and Erikson that explain adulthood. These aspects include, as seen in relatively collectivist cultures, highlighting how adult individuals change rather than how they develop and involving structure-building and structure-changing tasks to be accomplished (Aktu & İlhan, 2017; Levinson, 1986, 1996).

Life structure could be defined as the sum of individuals' self-representation and the relationships with the outer world other than self. Self-representation involves personal hopes, needs, value judgements and goals, as well as the meanings attributed to them. As for the outer world, it encompasses social processes such as family, work, friend relationships, religion, and responsibilities (Levinson, 1986, 1996). According to Levinson (1977, 1978, 1996), individual life structure is composed of a pattern that fulfils structure-building and structure-changing tasks. Settling down and transition periods are reported to follow each other respectively in the early, middle and late adulthood periods. While structure-building task is realized in the settling down periods, structure-changing tasks are realized in the transition periods. An adult person who builds a structure in the settling down period tries to put his/her hopes, self-worth, work and family life, and social roles within this structure. As for the transition phase, the individual reviews this existing structure and questions goals, social relationships and self-representation (Levinson, 1986, 1996). This provides the opportunity to make choices that will impact one's life in the subsequent period.

Early studies on life structure were found to test Levinson's theory developed based on his first studies (1977/1986) conducted with males in the middle adulthood period (Carpenter, 1992; Kopelman & Glass, 1979; Rolland, 1987; Smart & Peterson, 1994; Wolfe, O'Connor, & Crary, 1990). Levinson put the final form of this theory with his last studies conducted with women in the early adulthood period (1990/1996). With this period, studies on life structure (Huang, 2013; Gordon et al., 2002; Minter & Samuels, 1998; Rickards, 2005; Smithson, 2011; Stumpf, 2012) seemed to focus on the psychological changes in the early and middle transition phases of adulthood. The literature involves studies on life structure in different genders (Dyke & Murphy, 2006; Robinson & Smith, 2010), various age groups (Baatjies, 2015; Gordon et al., 2002; Sheridan, 2013) and various cultures (Aktu & İlhan, 2017; Yıldırım-Saatçı & Arıkan, 2014). In addition to these studies, it also includes studies related to various features such as leisure activities, life goals, religious life, social responsibilities, career development, and developmental crises (Carpenter & Patterson, 2004; Fouché et al., 2017; Gersick & Kram, 2002; Green, 2006; Larson, 2014; Smithson, 2011; Young, 2013). Frequency of these studies seems to increase after 2000, when there was an increase in the interest shown to Levinson's theory (Johnson, 2023). It is worth noting that there was an attempt to change the participant features and to investigate different issues related to life structure in these studies.

As it can be seen in the studies summarized earlier, studies about Levinson's life structure theory emerged in line with a developmental process. There is a limited number of studies that reviewed the studies on life structure (Aktu, 2016; Aktu & İlhan, 2017; Fouché et al., 2017; Smithson, 2011). On the other hand, review of the related literature indicates that no meta-synthesis studies on the phenomenon of life structure revealing adulthood in the framework of lifelong development approach. There is a need for investigating what life structure enhances in adult life from a holistic and systematic point of view. In this regard, this meta-synthesis study aims to fill this gap in the literature. It also aims to provide a guide for adults about the things to be given importance in the process of career development. In addition, it is expected to provide a concrete guide for experts in the field of psychology, in helping adult individuals to cope with developmental crises they might experience.

In line with the conclusions and recommendations of the studies in literature, the purpose of this study is to investigate the way adult individuals' life structures are shaped in transition periods and the factors that affect their career development in the qualitative studies about individual life structure. In line with this purpose, the study aims to demonstrate a common point of view. The sub-problems of the study are as follows:

1. How are life structures shaped in individuals' transition periods in the studies about individual life structure?
2. What are the factors that affect adult individuals' career development in the studies about individual life structure?

Method

Research Design

This study aims to obtain theoretical propositions by synthesizing findings of the studies about individual life structure. In line with this purpose, the study utilised a meta-synthesis approach that used qualitative design. Meta-synthesis is a qualitative comparison of the qualitative studies on a specific topic or phenomenon with their similar and different aspects (Çalık, & Sözbilir, 2014). Glesne (2013) emphasizes that meta-synthesis studies should identify the patterns among the studies from a holistic point of view and reach common themes. Hence, the present study utilised thematic content analysis method using the findings of the primary studies about life structure.

Data Sources

The sample of this study was selected using criterion sampling method, one of the approaches employed in qualitative research design. While purposive sampling involves researchers selecting rich information sources aligned with the study's purpose for in-depth analysis, criterion sampling is defined as adhering to a predetermined set of criteria (Büyüköztürk et al., 2016). In this study, the included studies were classified based on six criteria. Studies eligible for inclusion met criteria such as focusing on adult individuals, investigating individual life structure, being accessible in full text, being either a research article or thesis, and employing qualitative research methods. The exculusion criteria for the study were that the life structure was not the focus, it was not accessible in the database, and it was a review article.

Totally 12 studies were included in this study. Identification of the sample size was performed considering the focus of the study, amount of the data, and theoretical sampling criteria (Cropley, 2002; Yıldırım & Şimşek, 2016).

Accordingly, without losing the focus of the study, the purpose was to collect data at a maximum level until data saturation was achieved. Table 1 demonstrates the distribution of the number of participants, study designs, participants' features, data collection tools and data analysis methods in the studies mentioned.

Table 1

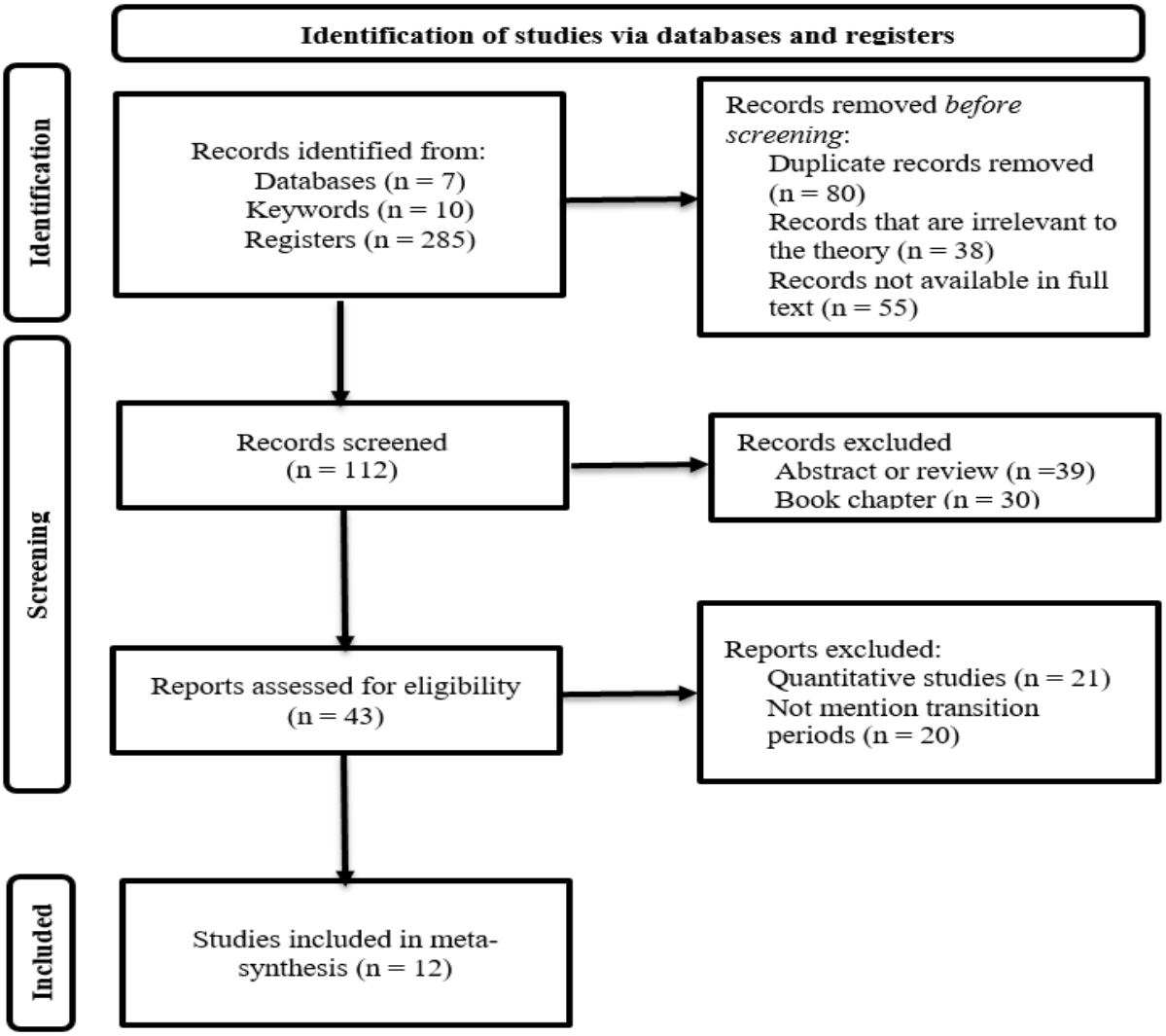
Distribution of the studies included in the meta-synthesis according to various features

Code	Study	Number of Participants	Research Design	Data Collection Tools	Data Analysis Method
M1	Aktu & İlhan (2017)	12 females and 16 males	Phenomenology	Semi-structured Interview Form	Inductive content analysis
T1	Baatjies (2015)	1 female	Psychobiographical Case Study	Interview Form Visual and written documents	Content analysis
M2	Dyke & Murphy (2006)	20 females and 20 males	Phenomenology	Semi-structured Interview Form	Thematic analysis
M3	Fouché et al. (2017)	1 male	Psychobiographical Case Study	Visual and written documents	Descriptive analysis
M4	Gersick & Kram (2002)	10 females	Phenomenology	Semi-structured Interview Form	Thematic analysis
M5	Gordon et al. (2002)	36 females	Case Study	Interview Form	Content analysis
T2	Green (2006)	1 female	Psychobiographical Case Study	Visual and written documents	Content analysis
T3	Larson (2014)	1 male	Psychobiographical Case Study	Visual and written documents	Descriptive analysis
M6	Robinson & Smith (2010)	3 females and 3 males	Phenomenology	Semi-structured Interview Form	Inductive content analysis
T4	Sheridan (2013)	2 females and 4 males	Phenomenology	Semi-structured Interview Form	Thematic analysis
M7	Yıldırım-Saatçı & Arıkan (2014)	11 females	Case Study	Interview Form	Content analysis
T5	Young (2013)	3 males	Phenomenology	Semi-structured Interview Form	Inductive content analysis

As summarized in Table 1, seven of the included studies were articles, while the remaining five were theses. Regarding study designs, six studies utilized Phenomenology and case study approaches, with four of the case studies employing the psychobiographical approach. All the studies were found to have selected participants at adulthood period. An analysis in terms of the interview results showed that nine studies used interview forms, and six of them used semi-structured interview forms. In addition, a number of studies utilised visual and written documents (n = 4). Concerning data analysis methods, seven studies used content analysis, two studies used descriptive analysis, and three studies used thematic analysis.

Procedure

The studies included in the meta-synthesis were identified using a five-stage method. Fig. 1 displays a detailed description in relation to the selection process of the studies included in the study.



Search: http://www.prisma-statement.org/

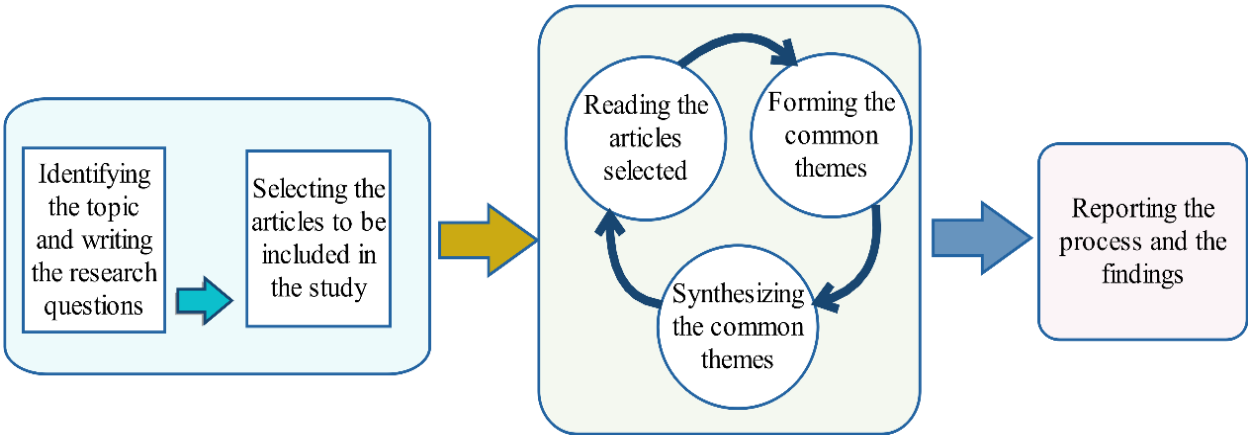
Fig. 1. Selection process of the studies included in meta-synthesis

As it is seen in Fig. 1, a set of research was conducted in Web of Science, Scopus, PsycInfo, PsycArticles, Google Scholar, Ebcohost, and MEDLINE data bases until 15th of November, 2022 (included) in relation to the individual life structure topic using various key words. These key words included (life structure, Levinson's life structure theory, life structure development, mid-life transition, life cycle, life course, seasons of man's life, seasons of woman's life, structure-building, and structure-changing). Tags and abstracts of the studies included in the study (n = 285) were searched. This phase, the records removed before screening (n = 173). During second phase, abstract, reviews, or book chapter were excluded (n = 69). In the third phase from the remaining articles, theses, and books the studies that included quantitative data and that did not involve transition phases in relation to life structure were

excluded (n = 31). In the fourth and the last phase, 12 studies (seven articles and five theses) that investigated the effectiveness of Levinson's individual life structure theory, life course and life cycle concepts or that had these topics at least in one part of the study were included in the analysis.

Data Analysis

Data collected from the study were analysed using thematic content analysis method. Büyüköztürk et al. (2013) reported that content analysis is a systematic approach that summarises data with coding performed according to previously identified criteria and with the categorization of the word groups in the text. Content analysis involves coding the data, identifying themes, associating codes with those themes, and interpreting findings within the context of the themes (Yıldırım & Şimşek, 2016). Analysis of the studies included in the meta-synthesis was performed following the process steps of meta-synthesis recommended by Polat and Ay (2016). These steps are demonstrated in Fig. 2.



Search: Polat & Ay, 2016.

Fig. 2. Process steps of meta-synthesis research

As seen in Fig. 2, after clarifying the research questions and selecting the studies for inclusion, the process involved reading the studies, identifying common themes, and synthesizing them in a comparative manner. Theoretical framework about life structure was constantly taken into consideration while performing all these. Based on the steps mentioned above, the primary findings were coded, the codes were grouped to access the categories, and themes were obtained from the categories. The findings were then interpreted (Strauss & Corbin, 1990). While these steps were being conducted, coding was performed using the NVivo11 qualitative data analysis program, which enables to see the findings of many studies together and helps to prepare a report and matrix in a short time (Kuş-Saillard, 2009). Coding was performed in a general framework in which the new codes were incorporated in line with the theoretical structure proposed by Strauss and Corbin (1990). The categories and themes produced in this study were presented in the findings section in a detailed way.

Credibility, Transferability, and Consistency

In this qualitative study, credibility was used for internal validity, transferability was used for external validity, and consistency was used for internal reliability in quantitative designs (Creswell & Plano Clark, 2015; Lincoln & Guba, 1985; Merriam, 2013; Patton, 2005; Yıldırım & Şimşek, 2016). For the credibility of the study, as the first method, a long-term interaction was experienced by conducting the review of literature and data collection together from the beginning of the research process that is extended over a long time. As the second method, data obtained from the studies that investigated the life structure topic were compared with each other, data were interpreted in light of the related literature, and depth-focused data were targeted. In the third method, variation was done by including studies having different features in the study. Themes and quantifications were visualised together while presenting the findings (Yıldırım & Şimşek, 2016).

Transferability of the study was enhanced initially by presenting the raw data without making any interpretations in a way to make it understandable for the reader; detailed descriptions were made by frequently using direct quotations. Secondly, criterion sampling method, one of the purposeful sampling methods, was utilised for the selection of the data sources included in the study. This way, the study aimed to enable analytic generalizations. To enhance consistency, data collection, data analysis and findings were investigated whether they demonstrated a holistic structure throughout the study. In this regard, the raw data recorded in the NVivo11 software and the raw data obtained by the researcher again through different data bases were found to be the same.

Finally, coding reliability over time and observation methods were used (Kirk & Miller, 1986; Yıldırım & Şimşek, 2016). The reliability formula (reliability = (consensus / (consensus + dissensus) X 100 by Miles and Huberman (1994) was used by performing coding over the same data set within one-month intervals by the researcher to ensure reliability over time (Miles et al., 2013). Coding reliability over time was found .92. For coding reliability based on observation, two experts who had doctorate degree in the field of adulthood psychology and who were competent in qualitative designs worked together with the researcher in order to associate the categories with appropriate themes. Agreement among the three raters was measured using Fleiss Kappa coefficient (Fleiss, 1971; Cohen & Swerdlik, 2013). According to Kappa coefficient (κ=.67) obtained from the calculations performed in http://www.ccitonline.org/jking/homepage/kappa1.xls, there was a significant agreement between the raters. Dissensus codes were put under the relevant themes as a result of the meetings with the raters. In this regard, reliability of the scores given by the three raters about the "transition period" and "career development" themes were found to be high. To sum up, as a result of applying coding reliability over time and observation, it was concluded that the themes highly matched with each other.

Findings

Transition Period Theme

The transition period theme was obtained from the analyses conducted in order to reveal the pattern related to the first sub-problem of the study. It was found that central components and environmental components sub-themes were collected under the transition period theme. Life goals and sense of self categories were collected under the central

factors theme; and hobbies and social relationships categories were collected under the environmental factors theme. Table 2 demonstrates the sub-themes and categories in relation to the transition period theme in the studies.

Table 2

Studies on the transition period theme

Theme	Sub-theme	Category	Number of Studies (n)	Number of Citations (r)	Related Sample Studies
Transition Period	Environmental Factors	Hobbies	6	9	M1, T1, M5, T2, T4
		Social Relationships	11	29	M1, T1, M5, T2, M2, M4, M3, T3
	Central Factors	Sense of Self	11	25	T1, M2, M3, M4, T5, M5, T3, M6
		Life Goals	7	13	M1, M4, M5,T2, M7

As it is seen in Table 2, analyses results related to the ways life structures were shaped in adult individuals' transition periods in the studies about life structure showed that half of the studies (n=6, r= 9) were related to the hobbies category of the environmental factors sub-theme, and nearly all of the studies (n=11, r=29) were related to the social relationships category. Almost all of the studies (n=11, r=25) were associated with sense of self category of central factors sub-theme, and more than half of the studies (n=7, r= 13) were associated with the life goals category.

Environmental Factors. Primary studies showed that hobbies were an important socializing tool and source of energy (n=6) in adult development in the transition period when expectations from life changes and life is questioned more. A finding in one of the related studies (M5) on this issue was "*spending time with friends by doing sports activities such as football, basketball".* Another notable finding related to hobbies was about activities done individually during free time. The finding in T2 was stated as *"Dealing with activities such as handicraft and worship, reading books etc*.".

Social relationships were found to be shaped within the framework of family, work life, and social responsibility during the transition periods of adult individuals (n=11). One of the related studies indicated *"I spend all my time at work. We hang around with friends from work out of work".* Another remarkable finding regarding social relationships was related to the nongovernmental organizations that enable shared activities. The finding in T3 was reported as "*Socializing by participating in social responsibility activities in some professional and religious charitable foundations".*

Central Factors. Adult individuals' sense of self was found to be shaped by changes in the expectations about future and orientation toward the inner world during transition periods (n=11). One of the related studies reported *"Orienting toward self, changing perceptions about the subjective world instead of thinking about the environment".* Another finding relation to the sense of self was associated with meeting expectations. The finding in M6 reported *"Experiencing disappointment about realizing the dreams"*. Adult individuals were found to develop life goals for

individual expectations and family life in the transition periods (n=7). One of the related studies (M4) reported "*Having a happy family and a wealth level to live more comfortably"*. Another remarkable finding in relation to life goals is about work life. Life goal in this issue was reported as "*becoming a respected woman in career life"* in M7.

Career Development Theme

The career development theme was obtained as a result of the analyses conducted in order to reveal the pattern about the second sub-problem of the study. The career development theme was found to include key experiences and advancement in profession sub-themes. The key experiences sub-theme included education life and work life categories, and the advancement in profession sub-theme included success (promotion) and mentor categories. Table 3 demonstrates the sub-themes in relation to the career development theme.

Table 3

Studies in relation to career development

Theme	Sub-theme	Category	Number of Studies (n)	Number of Citations (r)	Related Sample Studies
Career Development	Key Experiences	Education Life	5	8	M4, M5, T1, T2, T3
		Work Life	10	17	M4, M7, T2, M3, T3, T5, T1
	Advancement in Profession	Success (Promotion)	6	12	M2, M7, M5, T3,
		Mentor	6	13	M3, M7, T1, M4, T2, T3

As it is seen in Table 3, analysis results about the factors that affected adult individuals' career development showed that nearly half of the studies (n=5, r= 8) were related to the education life category of the key experiences sub-theme, and nearly all of the studies (n=10, r=17) were related to the work life category. Half of the studies (n=6, r=12) were related to success (promotion) category of the advancement in profession sub-theme, and half of the studies (n=6, r= 13) were related to the mentor category.

Key Experiences. Turning points in the education life of adult individuals were found to affect their career development (n=5). One of the related studies reported *"I learned taking lessons from the obstacles I faced in my education life. After each trouble, I turned towards different interests that directed my life".* In addition to this finding, other studies were found to support career development of education life (T1, T3).

Economic income in work life and work and family compatibility seem to affect adult individuals' career development (n=10). A finding in one of the related studies (M7) was "*As a woman, I need to balance between work and family all the time".* Another interesting finding about work life was related to financial status. A finding in M3 indicated, "*Being financially more comfortable in work life, meeting financial expectations".*

Advancement in Profession. The motivation type demonstrated by adult individuals in their career development was found to affect success (n=6). In this regard, intrinsic motivation seems to be given more importance in career development (n=4). One of the related studies (M7) indicated "*If I receive a reward in work life, what satisfies me is*

intrinsic satisfaction; this is how you become a respected person". Another remarkable finding related to success was about work life. The finding in M5 indicated *"The most important indicator of success in work life is to receive rewards, becoming more powerful financially".*

A mentor was found to contribute to the advancement in the profession and career development of adult individuals (n=6). One of the related studies (T1) reported *"the importance of having someone who is seen as a model and whose experiences are beneficial while improving in work life".* Another noteworthy finding related to the advancement in profession was about work life. The finding in M7 indicated, *"Views of the people seen as models have significant effects on the decisions to be made".*

Discussion

The analysis results regarding the ways adult individuals' lives were shaped during transition periods in the studies about individual life structure showed that hobbies had an important role in leisure activities and in providing source of energy. Review of the related literature indicates several studies that have parallel findings (Aktu & İlhan, 2017; Carpenter, 1992; Carpenter & Patterson, 2004, Muğan-Akıncı, 2013). For instance, Carpenter and Patterson (2004) reported that hobbies were important indicators of leisure acitivities and organization of the relationships with immediate environment in the early adulthood period. Aktu and İlhan (2017) stated that hobbies were important for leisure acitivities and helped the formation of life structure. In this regard, hobbies could shape life structures of adult individuals in the transition periods.

Another result of the present study indicated that adult individuals reshaped their life structure in the transition periods. Family was reported to be at the center of adult individuals in a transition period. Sense of self and direction of life goals might change in the transition period in which individuals try to change their expectations and have the tendency to question life more. While sense of self of individuals in a transition period is towards the inner world, their life goals are also shaped according to family life.

A review of the related literature reveals consistent findings various studies (Aktu & İlhan, 2017; Iso-Ahola, Jackson, & Dunn, 1994; Smithson, 2011; Wolfe et al., 1990). For instance, Aktu and İlhan (2017) concluded that adults in a transition period tended to use change-oriented metaphors, while those in the settling-down period favored stability-oriented metaphors. Wolfe et al. (1990) found that individuals in mid-age transition demonstrated the features of a transition period. These features that are shown as the indicators of structure change are listed as flexibility, complication, and independent decision-making. Smithson (2011) found that women in the middle age period went through changes in life structures in the social relationship and meaning of life aspects. Iso-Ahola et al. (1994) found that meaningful life activities such as spending time with family had more importance in the mid-age transition period in comparison to early adulthood. Hence, adult individuals who are in a transition period could experience changes in sense of self and life goals.

To summarise the results of this study related to the first research problem in the studies about individual life structure, hobbies shaped the life structure in transition periods, and individuals in this period went through changes in sense of self and life goals. Therefore, it is important to take these features into consideration in adult individuals

while providing them with individual and group counselling, because changes or crises to be experienced in the life structure in adult individuals' developmental period could cause changes in self-representation, career development, life goals, and social relationships. Due to the aforementioned reasons, it is considered that obtaining common features from the results of the studies about life structure would be beneficial for acknowledging adult individuals' psychological features and providing them with psychological support.

Studies on individual life structure are associated with the ways life structures are shaped and the factors affecting career development in adult individuals' transition periods because life structure of adult individuals continues throughout their career development. Based on this, factors that affect adult individuals' career development in the studies about individual life structure, which is the second problem of the present study, are presented as follows.

Analysis results on the factors that affect adult individuals' career development in the studies about individual life structure showed that the turning points in adult individuals' course of life affected their career development. One of the turning points in the life course is the choices made in their educational life. Another turning point is the financial income change in the work life and achievement of harmony between work and family (Aktu & İlhan, 2017; Green, 2006). Adult individuals seem to form a unique career development and thus shape their life structure accordingly. Review of the related literature indicates parallel findings (Baatjies, 2015; Bell & Lee, 2006; Green, 2006; Larson, 2014; Wink & Dillon, 2002).

For instance, Wink and Dillon (2002), in their study conducted with adults in different developmental periods, concluded that negative life events, experiences, and personality features in the life course affected their career development. Bell and Lee (2006) reported that variables that formed career in early adulthood period in women's life course included leaving home, finishing education life, starting work life, being in an intimate relationship, getting married, and becoming a mother. Green (2006) found that the obstacles in the educational aspect of the life course had effects on career development. In this regard, turning points in adult individuals' life course seem to form their career development.

Another finding in this study indicates that intrinsic motivation was the primary factor in becoming successful in adult individuals' career development. Review of the related literature indicates parallel findings (Baatjies, 2015; Gordon et al., 2002; Green, 2006; Yıldırım-Saatçi & Arıkan, 2014). For instance, Yıldırım-Saatçi and Arıkan (2014) found that intrinsic motivation was more effective for success in adult women's career development. Gordon et al. (2002) found that adult women shaped their career depending on family support. Baatjies (2015) stated that intrinsic satisfaction rather than financial income was the criterion of success in career development. In this regard, the role of intrinsic motivation seems to be the primary factor in demonstrating a successful career life.

As a result of the fifth and final finding in this study, one of the factors that contributes to adult individuals' career development is having a mentor who shares experiences and becomes a role model. The literature indicates parallel findings (Baatjies, 2015; Fouché et al., 2017; Green, 2006; Larson, 2014; Yıldırım-Saatçi & Arıkan, 2014). For instance, Baatjies (2015), Green (2006) and Larson (2014) reported that having a role model in work life in the adulthood years increased success. Yıldırım-Saatçi and Arıkan (2014) found that adult women took successful

women as an example in their career development. Fouché et al. (2017) found that having a mentor during adulthood period contributed to career development. Hence, having a mentor in adulthood years is an important factor that contributes to adult individuals' career development.

Limitations and Future Directions

Based on the limitations of the present study and the aforementioned results, a number of recommendations could be made to the researchers and practitioners in the field. First of all, in addition to the present study limited with 12 qualitative studies, a wider meta-synthesis study involving mixed method studies could be conducted. The same topic could even be investigated in some certain intervals in order to find out the changes in life structure over time. Using qualitative data analysis software that enhances data analysis process is recommended while conducting these studies. Secondly, based on the results of the present study, a scale on individual life structure could be developed in order to administer it to adult individuals. This way, it could be possible to measure the features that have effects on adult individuals' career development and changes in their life structure involving different aspects. Such study would contribute to the related literature more. Finally, the present meta-synthesis study attempted to reveal patterns for life structure and career development from a holistic point of view. Studies to be conducted in the future might investigate adult individuals' life structures and career development according to various features such as gender, education level and occupation. Mixed method research especially in this topic could yield more generalizable results.

Conclusion

To summarise the results of the second research problem of the present study, intrinsic motivation and mentor were the primary factors that had effects on career development in the studies about individual life structure, and the turning points in adult individuals' life courses shaped their career development. The importance of career development has been increasingly acknowledged due to the rising average life expectancy and the proportion of adulthood in the world (TÜİK, 2016). An adult individual's knowing about the factors that would affect his/her career and the potential problems to be experienced in work life and how to cope with them can shape his/her dreams about future and life goals. In this regard, knowing about the effect of intrinsic motivation and mentor in an individual's career development is a factor that needs to be taken into consideration both for individuals to achieve success in work life and for the psychological support to be provided by the experts working in the field of career counselling.

Ethic

I confirm that the research was conducted in compliance with the ethical standarts set by institutional and/or national research committee, as well as the 1964 Helsinki declaration and its subsequent amendments or equivalent ethical standarts.

Conflict of Interest

The author declares that he has no conflict of interest.

Funding

No scholarships or payments have been received from any institution for this manuscript.

References

Aktu, Y. (2016). Life structure of early adulthood period in Levinson's theory. *Current Approaches in Psychiatry*, *8*(2), 162-177. http://dx.doi: 10.18863/pgy.12690

Aktu, Y., & İlhan, T. (2017). Individuals' life structures in the early adulthood period based on Levinson's theory. *Educational Sciences: Theory & Practice*, *17*, 1383–1403. http://dx.doi: 10.12738/estp.2017.4.0001

Baatjies. V. P. (2015). *A psychobiography of Vuyiswa Mckonie*. Master of social sciences in clinical psychology, University of KwaZulu-Natal. http://hdl.handle.net/10413/14562

Bell, S., & Lee, C. (2006). Does timing and sequencing of transitions to adulthood make a difference? Stress, smoking, and physical activity among young Australian women. *International Journal of Behavioral Medicine*, *13*(3), 265-274. http://dx.doi: 10.1207/s15327558ijbm1303_11

Bühler, C. (1969). Humanistic psychology as an educational program. *American Psychologist, 24*(8), 736-742. http://dx.doi: 10.1037/h0028007

Büyüköztürk, S., Kılıç Çakmak, E., Akgün, O., Karadeniz, S., & Demirel, F. (2013). *Scientific research methods* (14th Ed.). Pegem Akademi.

Carpenter, G. (1992). Adult perceptions of leisure: Life experiences and life structure. *Loisir et Société/Society and Leisure*, *15* (2), 587-605. http://dx.doi: 10.1080/07053436.1992.10715433

Carpenter, G., & Patterson, I. (2004). The leisure perceptions and leisure meanings of a mid-life couple around the time of retirement. *World Leisure Journal*, *46* (2), 13-25. http://dx.doi: 10.1080/04419057.2004.9674354

Cohen, R. J., & Swerdlik, M. E. (2013). *Psychological testing and assessment, an introduction of test and measurement* (Ed. & Trans. E. Tavşancıl). Nobel.

Creswell, J. W., & Plano Clark, V. L. (2015). *Mixed method research: Design and execution* (2nd ed., Trans. Eds. Y. Dede, & S. B. Demir). Anı.

Çalık, M., ve Sözbilir, M. (2014). Parameters of content analysis. *Education, and Science, 39* (174). 33-38. http://dx.doi: 10.15390/EB.2014.3412

Dyke, L. S.,& Murphy, S. A. (2006). How we define success: A qualitative study of what matters most to women and men. *Sex Roles*, *55* (5-6), 357-371. http://dx.doi: 10.1007/s11199-006-9091-2

Erikson, E. H. (1984). *Eight ages of man* (Trans. T. B. Üstün & V. Şar). Birey ve Toplum.

Fleiss, J. L. (1971). Measuring nominal scale agreement among many raters. *Psychological bulletin*, *76* (5), 378-382. http://dx.doi: 10.1037/h0031619

Fouché, P., Plessis, R., & van Niekerk, R. (2017). Levinsonian Seasons in the Life of Steve Jobs A Psychobiographical Case Study. *Indo-Pacific Journal of Phenomenology, 17* (1), 1-18. http://dx.doi: 10.1080/20797222.2017.1331970

Huang, L. W. W. (2013). The transition tempo and life course orientation of young adults in Taiwan. *The Annals of the American Academy of Political and Social Science, 646* (1), 69-85. https://www.jstor.org/stable/23479237

Iso-Ahola, S. E., Jackson, E., &Dunn, E. (1994). Starting, ceasing, and replacing leisure activities over the life-span [Abstract]. *Journal of Leisure Research, 26* (3), 227-249. http://www.cabdirect.org/abstracts/19951800347.html

Gersick, C. J. G., & Kram, K. E. (2002). High-Achieving women at midlife. An exploratory study. *Journal of Management Inquiry, 11* (2), 104-127. http://dx.doi: 10.1177/10592602011002005

Glesne, C. (2013). *Introduction to qualitative research* (3rd Ed., Trans. Eds. A. Ersoy and P. Yalçınoğlu). Anı.

Gordon, J. R., Beatty, J. E., & Whelan-Berry, K. S. (2002). The midlife transition of professional women with children. *Women in Management Review, 17* (7), 328-341. http://dx.doi: 10.1108/09649420210445785

Gould, S. J. (2002). *The structure of evolutionary theory*. Harvard University Press. *https://books*.google.com

Green, S. J. (2006). *Karen Horney: A psychobiographical study*. Unpublished doctoral dissertation, Rhodes University, Grahamstown, South Africa. https://core.ac.uk/download/pdf/145055340.pdf

Havighurst, R. J. (1972). *Developmental tasks and education* (3rd Ed.). David McKay Company. *https://books*.google.com

Johnson, J. (2023). Transitioning from highly talented student to highly capable adult. In *Underachievement in Gifted Education: Perspectives, practices, and possibilities* (Eds. K. H. Collins, J. J. Robenson, & F. H. Ribeiro Piske, pp. 206-221). Routledge.

Kopelman, R. E., & Glass, M. (1979). Test of Daniel Levinson's theory of adult male life stages [Abstract]. *Academy of Management Proceedings, 1* (1), 79-83.

Kuş-Saillard, E. (2009). *Qualitative research projects with NVivo*. Anı.

Larson, B. (2014). *Wilfred R. Bion. A Levinsonian study of the emergence of creativity following the age 50 transition* (Doctoral dissertation, UMI No: 3663386). Wright Institute Graduate School of Psychology.

Levinson, D. J. (1977). The mid-life transition: A period in adult psychosocial development. *Psychiatry, 40* (2), 99-112. http://dx.doi**:** 10.1080/00332747.1977.11023925

Levinson, D. J. (1978). *The seasons of a man's life*. Knopf. *https://books*.google.com

Levinson, D. J. (1980). Toward a conception of the adult life course. In N.J. Smelser and E. H. Erikson (Eds.) *Themes of work and love in adulthood*. (pp. 265-290). Harvard University Press. *https://books*.google.com

Levinson, D. J. (1986). A conception of adult development. *American Psychologist, 41* (1), 3-13.

Levinson, D. J. (1996). *The seasons of a woman's life*. Knopf. *https://books*.google.com

Levinson, D. J., Darrow, C. M., Klein, E. B., Levinson, M. H., & McKee, B. (1976). Periods in the adult development of men: Ages 18 to 45. *The Counseling Psychologist, 6* (1), 21-25. http://dx.doi: 10.1177/001100007600600105

Lincoln, Y. S.,& Guba, E. G. (1985). *Naturalistic inquiry* (Vol. 75). Sage. *https://books*.google.com

Merriam, S.B. (2013). *A guide to qualitative research design and practice* (Trans. Ed. S. Turan). Nobel.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd Ed.). Sage. *https://books*.google.com

Miles, M. B., Huberman, A. M., & Saldana, J. (2013). *Qualitative data analysis*. Sage. *https://books*.google.com

Minter, L. E.,& Samuels, C. A. (1998). The ımpact of 'the dream'on women's experience of the midlife transition. *Journal of Adult Development, 5* (1), 31-43. http://dx.doi: 1068-0667/98/0100-0031$15.00/0

Muğan-Akıncı, G. (2013). Youth and Shopping Malls: A Case Study about Youth Preference in Mall Use. *Megaron Journal, 8* (2), 87-96. http://dx.doi: 10.5505/megaron.2013.44153

Patton, M. Q. (2005). *Qualitative research*. John Wiley & Sons, Ltd. *https://books*.google.com

Polat, S. ve Ay, O. (2016). Meta-synthesis: A Conceptual Analysis. *Qualitative Research in Education, 4* (1), 52-64. http://dx.doi: 10.14689/issn.2148-2624.1.4c2s3m

Rickards, T. S. (2005). *Confronting the taken-for-granted: the process of losing and regaining credibility for women coming-out at mid-life.* Unpublished master's thesis, The University Of New Brunswick, Ottowa, Canada. http://rickardsresearch.weebly.com/uploads/3/7/0/2/37025283/traceys_masters_thesis.pdf

Robinson, O. (2008). *Developmental crisis ın early adulthood: A composite qualitative analysis* (Doctoral dissertation). University of London, London. https://www.academia.edu/4765003/Developmental_crisis_in_early_adulthood_A_composite_qualitative_analysis

Robinson, O. C.,& Smith, J. A. (2010). Investigating the form and dynamics of crisis episodes in early adulthood: The application of a composite qualitative method. *Qualitative Research in Psychology, 7* (2), 170-191. http://dx.doi: 10.1080/14780880802699084

Rolland, J. S. (1987). Chronic illness and the life cycle: A conceptual framework. *Family Process, 26* (2), 203-221. http://dx.doi: 10.1111/j.1545-5300.1987.00203.x

Sheridan, P. (2013). *How friendship is understood in adults with intellectual disabilities across three life stages.* (Project Assignment) University of Limerick, Course of Clinical Terapies. http://hdl.handle.net/10344/3243

Shi, Y. D. (2011). *The role of strengths in managing midlife career transition for corporate professionals.* Paper presented at the BBS HDR Student Conference, University of Wollongong, New South Wales, Australia. http://ro.uow.edu.au

Smart, R., & Peterson, C. (1994). Stability versus transition in women's career development: A test of Levinson's theory. *Journal of Vocational Behavior, 45* (3), 241-260.

Smithson, K. L. (2011). *The relationship among social connectedness, meaning in life, and wellness for adult women in Levinson's mid-life transition stage* (Doctoral dissertation), Georgia State University, Atlanta, USA. https://scholarworks.gsu.edu/cps_diss

Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research*. (Vol. 15). Sage. https:// li.suu.edu.

Stumpf, K. R. (2012). Empirical midlife studies and the backlash against midlife crisis. http://www.midlifecrisismarriageadvocate.com/support-files/empirical_midlife_studies_and_the_backlash_against_midlife_crisis.pdf

Türkiye İstatistik Kurumu (2016). Population registration system results based on address, 2016. *Haber Bülteni, 24638*. http://www.tuik.gov.tr/PreHaberBultenleri.do?id=24638

Wink, P., & Dillon, M. (2002). Spiritual development across the adult life course: Findings from a longitudinal study. *Journal of Adult Development, 9* (1), 79-94. http://dx.doi: 1068-0667/02/0100-0079/0

Wolfe, D., O'Connor, D., & Crary, M. (1990). Transformations of life structure and personal paradigm during the midlife transition. *Human Relations, 43* (10), 957-973. http://dx.doi: 10.1177/001872679004301002

Yıldırım-Saatçı, E. Y., & Arıkan, S. C. (2014). Working model of women-to-women entrepreneurship mentoring and underlying emotional and motivatıonal factors for sustainable success. *Scholars World- IRMJCR. 2* (3). 1-12.

Yıldırım, A., & Şimşek, H. (2016). *Qualitative research methods in the social sciences*. Seçkin.

Young, N. (2013). *How do men with depression during the mid-life transition, navigate stigma?* (Project Assignment). University of Limerick, Course of MSc Occupational Terapy. http://hdl.handle.net/10344/3228

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: August 3, 2023
Accepted: September 22, 2023
http://dergipark.org.tr/rep

e-ISSN: 2602-3733
Copyright © 2023
September 2023 ◆ 7(2) ◆ 235-251

Research Article
https://doi.org/10.54535/rep.1337264

Pre-service Teachers' Interaction Tool Preferences in Blended Learning and Their Views on Google Classroom

Ayşe Bağrıacık Yılmaz [1]

Aydın Adnan Menderes University

Abstract

Purpose: This study aims to determine the opinions of pre-service teachers who receive education through blended learning regarding Google Classroom support and their interaction preferences in blended learning environments. Methodology: The research was conducted using a case study design, one of the qualitative research designs. Data were collected from 11 pre-service teachers who participated in a teaching practice course, utilizing a semi-structured interview form. The collected data were coded and categorized using descriptive and content analysis methods. Findings: The study found that students primarily utilized Google Classroom for assignments and interactions with instructors, other students, and course content. Students emphasized their need for interaction with the instructor as the most significant aspect of blended learning, followed by content interaction and interaction with other students. Pre-service teachers' views towards Google Classroom were positive. Their opinions were categorized under the categories of contribution to self-regulation, an interactive assignment system, ease of use, and student-student interaction. Highlights: Google Classroom can be used as a support for LMSs. When it is used with activities that will attract students' interest, it may be possible to increase students' satisfaction. Students were very satisfied with the detailed and quick feedback on their assignments. Another prominent feature of Google Classroom is that the documents are systematically organized and always accessible. One may suggest that LMSs that do not have these features should take precautions at this point. All of the students plan to use Google Classroom in their professional life.

Key Words

Google classroom • Interaction • Blended learning • Web 2.0 • LMS

[1] **Correspondance to:** Aydın Adnan Menderes University, Faculty of Education, Department of Computer Education and Instructional Technologies, Aydın, Türkiye. E-mail: ayse.yilmaz@adu.edu.tr **ORCID:** 0000-0002-9971-2440

Citation: Bağrıacık-Yılmaz, A. (2023). Pre-service teachers' interaction tool preferences in blended learning and their views on Google Classroom. *Research on Education and Psychology, 7*(2), 235-251.

Introduction

Distance education, which was being adopted by an increasing number of institutions before the Covid-19 pandemic, has become indispensable for educational institutions during the pandemic. As Adedoyin and Soykan (2020) state, it is clear that distance education, especially in the form of blended learning, will continue to be a part of our live. Blended learning combines the advantages of face to face and distance education, making education accessible to both instructors and students (Graham, 2006). In our country, where the number of students is constantly increasing (Council of Higher Education, 2021a), it has now become a necessity to leverage these advantages.

In our country, although the impact of the pandemic has decreased (as of the fall semester of the 2021-2022 academic year), courses have started to be held predominantly face-to-face (Council of Higher Education, 2021b). However, many institutions have continued to benefit from the advantages of blended learning, taking into account the course of the pandemic. In the distance education dimension of blended learning, some higher education institutions use self-developed learning management systems (LMSs), while others use open-source software such as Moodle. The LMSs are usually integrated with video conferencing software such as BigBlueButton, Zoom, Skype, Adobe Connect, Google Meet, etc. to enable instructors to conduct online synchronous lectures.

Institutions typically utilize LMSs to make announcements, share information and learning content, conduct lectures, and discussions on a given task (Wang et al., 2012). LMSs such as Blackboard, Desire2Learn, and Moodle are structured with weekly units or modules, through which instructors deliver course materials to students. Assessments and exams can also be administered using these platforms (Bates, 2018). However, it's important to note that each LMS has its unique limitations, and not all LMSs offer the same features.

While Moodle can provide a structure that enables students to engage in discussions on a topic, an institution's self-designed LMS may not possess this capability. However, it is well-established that discussions enhance student interaction (Rhode, 2008), and interaction is a crucial component of the learning process (Moore, 1989). Similarly, the necessity of giving feedback to students has been demonstrated by various studies in the literature (Author, 2020; Karadeniz, 2023; Rovai, 2003). Nevertheless, some of the LMSs may not facilitate instructors in offering detailed feedback to students. In such cases, the utilization of Web 2.0 tools becomes one of the best options.

Google Classroom is one of the Web 2.0 tools used in both face-to-face and online learning. This tool allows students to discuss a topic set by the instructor. In addition, instructors can collect students' assignments in an organized structure and evaluate them individually by marking and commenting on them (Google Classroom, 2022). Sukmawati and Nensia (2019) found that students were excited when using Google Classroom. The application can be easily accessed from devices such as computers and smartphones. Students can see the assignments and deadlines for these assignments in the application. In addition, assignments can be easily uploaded from any device. Additionally, students can interact with each other and the instructor in Google Classroom. The instructor can make confidential comments on students' assignments. The ability to upload MS Word, Powerpoint, and, pdf files to the platform is also one of its positive features. Students can easily access the materials they have forgotten again.

In the literature, various studies have explored students' and teachers' opinions about Google Classroom. Korkmaz (2021) collected opinions about Google Classroom from 54 students in the Department of Mathematics teaching with the help of an open-ended question in a questionnaire form. As positive aspects of Google Classroom, the students identified individual speed and replay, easy access, time and space independence, student-faculty dialogue, being economical, and being suitable for formation courses. The factors that stand out in the negative aspects are that it is not suitable for field courses, does not provide instant feedback, and passivates the student. In addition, some of the students find the application inefficient.

Çınar et al. (2015) examined Google Classroom as a LMS. As a result of the analysis, it was determined that its features, such as simple and plain interface design, asynchronous communication, not requiring additional software, sharing resources, giving assignments, file storage, bulletin board, task reminder, etc. would be useful for educational purposes. Accessibility, the creation of a robust comment network and feedback system, and a user-friendly interface are also advantages of Google Classroom (Akgün et al., 2021, Mohd Shaharanee et al., 2016). Sansinadi and Winarko (2020) also evaluated Google Classroom as easy-to-use software. According to the study conducted by Yılmaz (2020), Google Classroom was used as a LMS in many universities in Turkey during the pandemic period. In the same study, it was determined that students were partially satisfied with Google Classroom in terms of navigation, access, course period, assessment and evaluation activities, and support services.

Poyraz and Özkul (2019) questioned whether Google Classroom can be used as a LMS. The researchers identified the strengths of Google Classroom as "ease of use, time-saving, flexible structure, open to everyone and mobile" and the weaknesses as "Google dependency, limited communication, instant quizzes, and tests, sharing between learners". It was evaluated that Google Classroom cannot be used as an LMS for reasons such as organizational course design, collaborative work, and lack of learning analytics. Azhab and Iqbal (2018) also received opinions from 12 instructors about Google Classroom and concluded that this software can only be used for document management and basic classroom management.

Ülker et al. (2021) evaluated Google Classroom as an e-portfolio software. As a result of the application with 17 pre-service science teachers, it was determined that the pre-service teachers enjoyed doing assignments on Google Classroom, even if it was difficult. In addition, the pre-service teachers think that they will use Google Classroom in their professional lives in order to teach effectively. Teachers who are actively teaching are of a similar opinion. Teachers find it useful in terms of enabling collaborative learning, reducing problems, organizing student documents, and saving time, and they want to continue using Google Classroom (Harjanto & Sumarni, 2021).

When the studies in the literature are examined in general, it is seen that Google Classroom has advantages and disadvantages, but its advantages stand out. Features such as having a deadline and systematic storage of documents can be utilized for self-regulation skills that are part of successful distance education. The resource management skill, which was developed by Pintrich et al. (1991) and included in the accepted self-regulation scale, is considered as one of the skills necessary for students to use the resources in the learning environment effectively. It can be said that Google Classroom also contains components that can contribute to students' self-regulation skills. Considering

that students with high self-regulation skills are more likely to be successful in distance education (Yükseltürk, 2009), it can be thought that it would be useful to get Google Classroom's support in this regard.

It is seen that Google Classroom is sometimes used as a complete LMS and sometimes as a support to the LMS. In the institution where this research was conducted, students used the unique distance education platform of the institution as the LMS. Online synchronous courses were conducted through Google Meet, which is integrated into the system. Additionally, the process was supported with face-to-face lessons. In addition to the distance education portal, Google Meet, and face-to-face meeting components, the instructor included Google Classroom and Whatsapp software in the process. As a matter of fact, there is no support in the institution's portal for students to communicate among themselves in writing. Google Classroom was integrated into the process in order to overcome the disadvantage of the portal in giving feedback on assignments, ensuring asynchronous communication, and to providing self-regulation for students who are faced with many tasks. The main reason that motivated the researcher to conduct this study was to determine the place and impact of Google Classroom among all these tools. In this context, the aim of this research is to determine the opinions of pre-service teachers who receive education through blended learning about Google Classroom support. In line with this purpose, answers to the following questions will be sought:

1. How do pre-service teachers utilize different platforms in blended learning when doing assignments, interacting with the instructor, other students and content?

2. What are the interaction preferences of pre-service teachers in blended learning?

3. What are the positive and negative aspects of using Google Classroom in the learning process?

Method

Research Design

The research was conducted based on the case study design, one of the qualitative research designs. Case studies aim to collect comprehensive, systematic, and in-depth information about a situation (Patton, 2014). In this study, it was aimed to examine the benefits and limitations of using Google Classroom from the pre-service teachers' perspective. Additionally, information was obtained from students about how often they use different interaction tools and which interaction tools they prefer for different types of interaction.

Study Group

The study group of the research was determined by convenience sampling and criterion sampling techniques. In the convenience sampling technique, the researcher selects the most appropriate sample in terms of time, effort and, cost (Patton, 2014). This researcher also conducted the study with the most accessible groups. In criterion sampling, participants are included in the study according to certain criteria (Patton, 2014). In this study, in order to be included in the data collection process, the participants were required to meet the criteria of taking the teaching practice course with Google Classroom support and taking the teaching practice course with blended learning. Demographical information about the participants is given in Table 1.

Table 1

Demographic Characteristics of the Participants

Participants	Age	Gender	Department
P1	27	Female	Turkish Language and Literature
P2	21	Female	Social Sciences Teaching
P3	22	Male	Social Sciences Teaching
P4	24	Female	Turkish Language and Literature
P5	42	Female	Turkish Language and Literature
P6	22	Female	Social Sciences Teaching
P7	21	Male	Social Sciences Teaching
P8	24	Female	Turkish Language and Literature
P9	25	Female	Turkish Language and Literature
P10	22	Female	Social Sciences Teaching
P11	21	Female	Social Sciences Teaching

Table 1 shows that 9 of the participants were female and 2 were male. The ages of the participants ranged between 21 and 42, but most of them were in their 20s. A total of 11 participants took part in the study, 5 of whom were Turkish Language and Literature and 6 of whom were Social Studies Teachers and the participants were coded as P1, P2....

Research Instruments

A form containing structured and semi-structured interview questions was used as a data collection tool. In the first part of the form, students were asked questions about how often they use different interaction tools, and which interaction tools they prefer for different types of interaction. In the second part, there were questions about the positive and negative aspects of using Google Classroom, how it could be used better, and whether the participant would use this program when s/he becomes a teacher. The form was developed based on the literature and the researcher's experiences. The draft form was reviewed by two open and distance learning experts and revised and finalized in line with the feedback.

Research Processes

The data of the study were obtained from 11 pre-service teachers who took the teaching practice course at the faculty of education of a state university. During the data collection period, the course was taught as a blended course. During the teaching practice course, the instructor and the students regularly held online meetings lasting 30 minutes on average every week. During the meetings, the students were given feedback on their assignments and explained in detail how they should do the next assignments. Since each course had six students, interactive lessons were possible. In order to discuss some topics in more detail, the instructor and the students had face-to-face lectures 3 times in one group and 4 times in the other during the semester.

Although the institution's LMS included a section on assignments, it was not possible to provide detailed feedback to students through the module, for these reason assignments and some learning/teaching activities were carried out through Google Classroom. In Google Classroom, the assignment of the week was explained to the students in detail and templates were uploaded if necessary. In addition, students were given small quizzes and activities such as debates.

Data Analysis

The answers given to the structured questions in the first part of the form were analyzed by the descriptive analysis method. In descriptive coding, the answers of the participants are placed in predetermined codes (Yıldırım & Şimşek, 2013). The answers to the semi-structured questions were analyzed with the content analysis method, which is based on the method of categorizing the data into codes, categories, and themes (Miles & Huberman, 1994). Content analysis was conducted using MAXQDA software.

Validity and Reliability

The data obtained in the study were coded twice by the researcher, 10 days apart. In the second coding process, for example, a category previously named as "systematic organization" was combined with the category of "resource access and management". In qualitative research, many measures are taken to increase the validity and reliability of the research. One of these measures is to indicate the researcher's experience and biases (Gibbs, 2009). Accordingly, the title "the role of the researcher" was included in the study. In addition, Lincoln and Guba (1985) suggested that the results of the research should be verified by other researchers to confirm that they are not the product of the researcher's imagination. In this study, updates were made by taking the ideas of an instructor who has qualitative research and has used Google Classroom. Participant confirmation as suggested by Creswell (2009) was employed for the validity of the research. Accordingly, the researcher summarized the participants' statements from time to time during the interview to confirm whether she understood the participants' statements correctly.

Role of the Researcher

The researcher took part in this research study as a practitioner and had the opportunity to make observation in the field for a long time. Having worked on improving the quality of open and distance learning for many years, the researcher observed that the LMS alone was not sufficient for the teaching practice course. She found that students wanted to receive feedback on their assignments, but this was not possible via e-mail. In addition, she realized that students were doing assignments based on unsubstantiated information obtained from other students taking the course, and students needed written and clear instructions. One of the most significant observations is that students tend to procrastinate on their weekly assignments (lesson plans, observation reports, etc.) until the end of the semester, resulting in lower-quality work. For these reasons, the researcher thought it would be useful to use a platform that would support students' self-regulation. The researcher's experience in conducting qualitative research made it easier for the researcher to conduct the research without involving her feelings and thoughts in the process.

Results

Pre-Service Teachers' Level of Utilization of Different Platforms

Table 2

Ranking of Preferred Platforms for Assignments

Platforms	1st		2nd		3rd		4th	
	f	%	*f*	%	*f*	%	*f*	%
LMS	1	9,1	4	36,4	3	27,3	3	27,3
WhatsApp	2	18,2	4	36,4	3	27,3	2	18,2
Face to face	3	27,3	1	9,1	2	18,2	4	36,4
Google Classroom	5	45,5	2	18,2	3	27,3	1	9,1

When Table 2 is analyzed, it can be seen that Google Classroom is the platform that students find most useful when doing assignments. This is followed by LMS and WhatsApp. Face-to-face communication ranked last. During the implementation, assignments were given via Google Classroom, especially because of its advantages in giving feedback and corrections. The reason why the pre-service teachers used Google Classroom first for doing assignments may be due to the implementation effect. However, this effect is not negative as seen in Figure 1.

Table 3

Ranking of Preferred Platforms for Student-Instructor Interaction

Platforms	1st		2nd		3rd		4th	
	f	%	*f*	%	*f*	%	*f*	%
LMS	2	18,2	5	45,5	1	9,1	2	18,2
WhatsApp	6	54,5	1	9,1	4	36,4	-	-
Face to face	2	18,2	2	18,2	2	18,2	4	36,4
Google Classroom	1	9,1	3	27,3	3	27,3	4	36,4

Table 3 shows that pre-service teachers primarily used WhatsApp to interact with the instructor. The reason why pre-service teachers first preferred WhatsApp may be that it provides instant written communication. In addition, WhatsApp may have come to the forefront because it is the easiest software to access among the software in the table and the most widely used software in daily life. The majority of the students preferred the LMS in second place. It is thought that the reason for this is that the LMS also includes video conferencing software. Thanks to video conferencing, students can see the instructor instantly from wherever they are, even if virtually. It is less attractive for students to come to the faculty and see the instructor in person or to communicate asynchronously via Google Classroom.

Table 4

Ranking of Preferred Platforms for Student-Student Interaction

Platforms	1st		2nd		3rd		4th	
	f	%	*f*	%	*f*	%	*f*	%
LMS	-	-	1	9,1	2	18,2	2	18,2
WhatsApp	3	27,3	6	54,5	1	9,1	-	-
Face to face	4	36,4	3	27,3	2	18,2	-	-
Google Classroom	4	36,4	-	-	3	27,3	2	18,2

Students mostly prefer to interact with their fellows face-to-face and through Google Classroom (Table 4). In fact, the practitioner observed that students interacted more on WhatsApp than on Google Classroom. However, it is thought that Google Classroom has come to the forefront because students enjoy brainstorming and debate-like activities in Google Classroom. Indeed, Figure 1 demonstrates that Google Classroom effectively facilitates student interaction.

Table 5

Ranking of Preferred Platforms for Student-Content Interaction

Platforms	1st		2nd		3rd		4th	
	f	%	*f*	%	*f*	%	*f*	%
LMS	1	9,1	3	27,3	2	18,2	1	9,1
WhatsApp	1	9,1	5	45,5	2	18,2	1	9,1
Face to face	-	-	-	-	1	9,1	-	-
Google Classroom	9	81,8	2	18,2	-	-	9	81,8

It is seen that students interacted with the content mostly through Google Classroom (Table 5). This finding was expected since the instructor primarily shared course documents, particularly assignments, via Google Classroom. When the instructor shared the same document on the LMS and Google Classroom at the same time, it was observed that only a few students view the document on the LMS, while all students responded to the document on Google Classroom. Secondly, students accessed the documents via WhatsApp. The reason for this was that the instructor shared the documents again via WhatsApp in response to some questions. Since the documents were only transmitted electronically, it is unsurprising that students did not access the documents in a face-to-face manner.

Pre-service Teachers' Interaction Preferences in Blended Learning

Table 6 shows that the pre-service teachers stated that they needed to interact with the instructor the most in order to be successful in the learning process. This is followed by student-content interaction. Pre-service teachers need student-student interaction the least. In order to be successful, students need to do the tasks assigned to them. In order to do this, they should follow the instructions given by the instructor well. Although the necessary documents

are uploaded to Google Classroom and LMS after they are organized in detail, students always need to ask questions to the instructor. This may be the reason why students attribute the most value to the interaction with the instructor in being successful.

Table 6

Pre-Service Teachers' Interaction Preferences

Type of Interaction	**1st**		**2nd**		**3rd**	
	f	**%**	***f***	**%**	***f***	**%**
Student-instructor	1	9,1	3	27,3	2	18,2
Student-content	1	9,1	5	45,5	2	18,2
Student-student	-	-	-	-	1	9,1

Positive and Negative Aspects of Using Google Classroom in the Learning Process

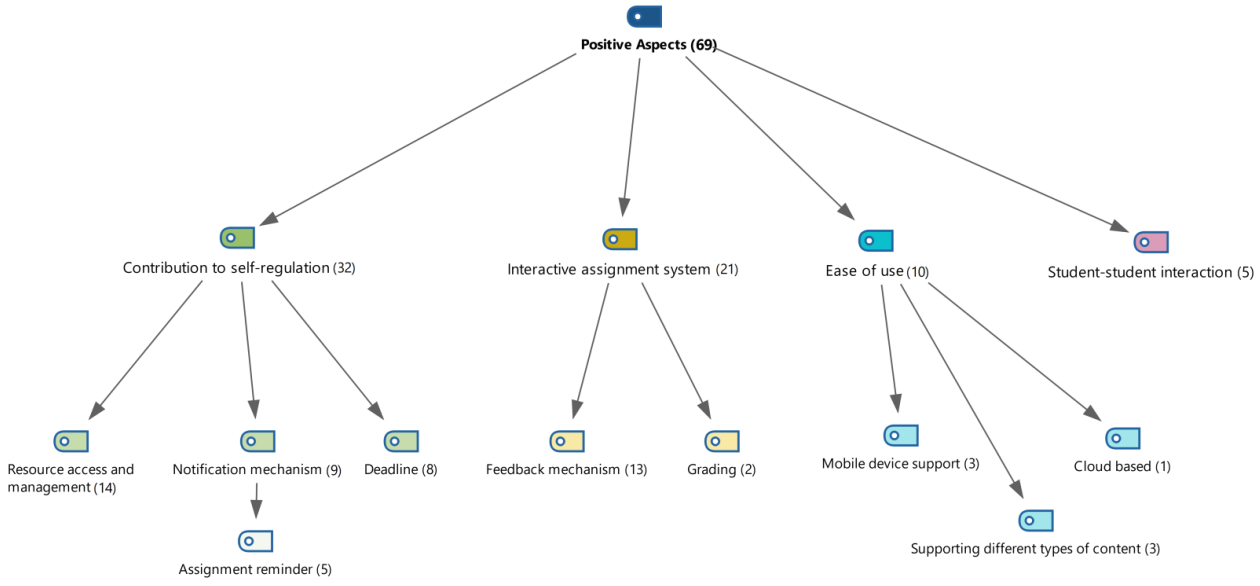


Figure 1. Positive Aspects of Google Classroom in the Learning Process

When Figure 1 is examined, it is seen that students discussed the positive aspects of using Google Classroom in the categories of contribution to self-regulation, interactive assignment system, ease of use and student-student interaction. None of the students responded negatively to the question about negative experiences with Google Classroom. Only two of the students stated that an instant messaging module and a video conferencing module could be added to Google Classroom. This advice from the students is noteworthy. In fact, Google has a video conferencing infrastructure (Google Meet) and a chat infrastructure (Google Chat). However, these are not integrated into Google Classroom and require planning on a separate platform. This may reduce the possibility of them being

used together with Google Classroom. This is the only deficiency identified for Google Classroom in the research and in the following sections, positive opinions are analyzed by category respectively.

Contribution to Self-Regulation

The most frequently mentioned codes about the positive aspects of Google Classroom by pre-service teachers formed the category of "contribution to self-regulation" (Figure 1). The constant accessibility of resources on Google Classroom, along with its systematic organization, aided pre-service teachers in resource management, allowing for easy retrieval of forgotten or confused information/content. As an example, when preparing the final assignment file, pre-service teachers downloaded the assignments they had completed since the beginning of the semester, effortlessly organized them, and then submitted the organized file to the instructor. P7 expresses this situation as follows: When I was collecting my final assignment file, I took my assignments from Google Classroom. I put them on my own computer very messy, I did not create a separate file. I downloaded my assignments from there again and organized them. Google Classroom is ready and systematic. (P7- Resource access and management).

In addition to resource access and management, students also appreciated the fact that Google Classroom notifies them by e-mail when an assignment or document is uploaded, when feedback is given, etc. The assignment's specified due date and time on the platform were also positively received. Again, the fact that the platform reminded the students one day before the assignment was due contributed to students' self-regulation. Below are some participant statements regarding the notification mechanism and deadlines:

Not everyone likes doing assignments, but there is a constant assignment message in the classroom. I mean, that's how I perceive it. There is a message there; I have to do the assignment to delete that message. I mean, I think it gives responsibility. I mean, in a way, it teaches the student to be aware of his/her own responsibility. (P5-Notification mechanism)

I was impressed that there was a deadline for assignments. When I saw the deadline, I would say, "Oh, I have an assignment that is due soon, I should do it as soon as possible." (P4-Deadline)

Interactive Assignment System

After the features that contribute to self-regulation, the category that students most frequently mentioned positively was the "interactive assignment mechanism". This mechanism was appreciated in terms of providing detailed feedback (feedback mechanism) and grading. However, some students noted that the feedback was still dependent on the instructor's motivation; another instructor might not provide feedback even with the use of Google Classroom. During this implementation, students were given assignments every week and feedback was provided for all assignments within 2-3 days after uploading. In addition to the feedback provided on the document, symbolic notes were given. These notes helped students to understand the quality of their assignments. The situation can be better understood from the students' statements:

I mean, it gave us the opportunity to communicate one-to-one with the instructor. Instructor made a comment and immediately gave us the opportunity to correct it again. It is very good. I mean, writing a comment there is a very

good benefit. I mean, it is good, you get direct feedback. I can also get back to you directly. It is very useful in this respect. (P5-Feedback mechanism)

You (the instructor) highlightened the places where we made mistakes with a different color on the assignment. I think that attracted our attention. (P4- Feedback mechanism)

For example, when you first graded us, we got low grades. We realized that we were deficient; we started doing our assignments accordingly. This is also important. (P6-Grading)

Ease of Use

Some of the students compared Google Classroom with the LMS in terms of having a mobile application. Accordingly, Google Classroom having a mobile application is an advantage. In addition, the fact that only certain types of documents (pdf and zip) can be uploaded to the LMS, but a much wider range of documents can be uploaded to Google Classroom puts it one step ahead. Moreover, one student stated that he used Google Classroom as a storage tool when their mobile phone's memory was insufficient. Some examples of participant statements are given below:

It can be accessed easily from mobile. We can easily see the assignments and the feedback given to the assignments. Even when we were having a discussion on Google Classroom, it was easier to enter and comment from mobile. (P11-Mobile device support).

I could directly upload my assignments. When I upload something to LMS, I have to compress it or convert it to pdf, but in Google Classroom I can upload it directly. It was very convenient for me. (P11- Supporting different types of content)

You know, there are some applications like this, they are complicated, difficult to access, and you get a bit confused when you enter. I think Classroom is very clear. You can easily find out what is where. Even when I enter it on my mobile phone, when there is an assignment or announcement, it shows it at the beginning, so I think it is very nice in that respect. (P3- Ease of use)

Student-Student Interaction

Student-student interaction is the least emphasized but an important category. Since it is not possible to provide interaction between students in a LMS, it is encouraging to receive positive feedback for Google Classroom in this regard. In this implementation, no great effort was made to increase student interaction. However, some students stated that their interactions with their friends increased thanks to activities such as discussions, etc. within the course. Some of the participant statements belonging to this category are given below:

We created a discussion environment with our friends. Everyone wrote down their opinions and I thought it was good. Interaction increased a lot. Yes, I liked the application in this respect. I mean, I think it increased communication with friends in education. I think it had a positive effect on that. (P4-Student-student interaction)

I would like to do more discussion activities in Google Classroom. I read my friends' comments individually. I responded where necessary. (P3-Student-student interaction)

Discussion

In this study, which examines how pre-service teachers use different platforms for doing assignments, interacting with the instructor, other students, and resources, and their thoughts about Google Classroom among these platforms, it was determined that students intensively benefit from Google Classroom and have positive thoughts about Google Classroom. As it is known, interaction is an important component in online learning environments (Moore, 1989). In this study, students stated that they needed to interact with the instructor the most in order to be successful in the course. This is followed by interaction with the content. Indeed, Kuo et al. (2019) identified student-instructor interaction as the greatest predictor of satisfaction in online learning. Satisfaction is one of the paths to academic success. However, in this study, it was determined that the LMS alone cannot provide the interaction that students need. In other words, while interacting with peers, instructors, and students, students may use other platforms more than the LMS. The LMS was not the predominant first choice of students neither for doing assignments nor for interacting (instructor, students, and content). This finding aligns with the views of Stern and Willits (2011) who emphasized that LMSs alone are no longer sufficient in the teaching process. They suggested that Web 2.0 tools should be integrated into the learning process as appropriate. Google Classroom, while sharing similarities with Moodle LMS, offers various benefits in educational environments (Barman & Karthikeyan, 2019).

The pre-service teachers' perspectives concerning the advantages of Google Classroom align with the outcomes elucidated in the initial segment of the investigation. Students articulated that they were capable of engaging with their peers due to the utilization of Google Classroom. This discovery coincides with the conclusions established by Sukmawati and Nensia in (2019), and Korkmaz in (2021). Although there is no category for direct interaction with the instructor, especially in the code of detailed feedback in the interactive assignment system category, it presents that students can interact with the instructor and benefit from it. Alqahtani (2019) also emphasized the interactive assignment feature of Google Classroom as an advantage. In addition, Google Classroom is useful in providing interaction between students and with the instructor (Salim & Tresnadewi, 2020). Students' satisfaction with the feedback system of Google Classroom was determined by Akyüz (2021) and Mohd et al. (2016). Sukmawati and Nensia (2019) also concluded that students were satisfied with the feedback mechanisms and the capability to engage in private commentary within the platform.

In the course of this research, it was observed that students conveyed a sense of enjoyment regarding the activities facilitated through Google Classroom. This discovery is congruent with the research outcomes delineated by Ülker et al. (2021). Furthermore, as discerned in the investigation conducted by Ülker et al. (2021), prospective teachers express a desire to incorporate Google Classroom into their instructional practices in the future. Google Classroom, particularly, exhibits utility in the systematic management of instructional materials for extensive student cohorts and the expeditious provision of feedback, thereby ameliorating concerns related to students becoming disoriented within the educational system.

Pre-service teachers perceive the utilization of Google Classroom as notably straightforward. Some students stated that they found the LMS more complex to use than Google Classroom. Google Classroom was especially liked in terms of the simplicity of using both the web and the interface and supporting different types of content. In

Akyüz's (2021) study, students also stated that Google Classroom was accessible and user-friendly. Similarly, Sansinadi and Winarko (2020) found that Google Classroom was perceived as easy-to-use by students. The attribute of user-friendliness was similarly identified in the investigations conducted by Korkmaz (2021), and Poyraz and Özkul (2019). The features of accessibility from different devices and uploading documents from any device, which are included in the findings of this study, were also expressed by Sukmawati and Nansia (2019).

Another feature of Google Classroom revealed in this study is that it contributes to students' self-regulation skills. Certainly, given the qualitative nature of this study, the outcomes derived may not be readily generalizable. Nevertheless, it is pertinent to acknowledge that resource management and time management, integral facets of self-regulation as delineated by Pintrich et al. (1991), emerged as prominently emphasized attributes of Google Classroom within the context of this investigation. The features of Google Classroom that have been identified in previous studies are that it helps students organize documents and saves time (Harjanto & Sumarni, 2019), provides access to forgotten assignments (Sukmawati & Nensia, 2019), eliminates students' anxiety that documents will be lost (Carley, 2015), and has features specific to LMS such as giving assignments, setting deadlines, and making reminders (Çınar et al., 2015). However, if all these features are considered as pieces of a puzzle and the big picture is considered, it can be seen that Google Classroom can contribute to students' self-regulation skills. Indeed, students stated that Google Classroom's reminding them about the assignments helped them to organize their learning process. In addition, the fact that all documents and assignments were systematically organized in an interface made it easier for them to plan the process. Considering all these, it would be insufficient to characterize Google Classroom simply as a document organization and classroom management platform (Azhab & Iqbal, 2018).

Conclusion & Suggestions

In this study, which centered its focus on students' preferences regarding interaction tools and the perceived advantages of Google Classroom relative to these tools, it was ascertained that students exhibited a favorable perception of the utility of Google Classroom. Notably, they predominantly used Google Classroom when engaging in assignment-related tasks, interactions with the instructor, peer interactions, and accessing course content and resources. Google Classroom's features such as giving assignments, setting deadlines for assignments, giving feedback and grading uploaded assignments can be used in blended learning. In addition, it would be useful to have students engage in activities such as discussion, brainstorming, etc. in the flow section of the platform. Using Google Classroom only for document sharing may negatively affect both students' and instructors' perception of the benefits of this platform.

Some LMSs may encompass the comprehensive array of functionalities characteristic of Google Classroom. In this case, based on the results of this study, practitioners may be advised to incorporate activities that increase interaction between students and provide detailed feedback on assignments as soon as possible. If the LMS does not have the functions mentioned here, it may be useful to utilize Google Classroom or an alternative Web 2.0 tool. The significance of the instructor's utilization of the extant features was also highlighted by the findings of this research. If the institution recommends or requires the use of Google Classroom, it would be beneficial to provide both technical and pedagogical education to the instructors.

This research was undertaken with 11 pre-service teachers. No planned intervention was made. Therefore, in future studies, students' opinions can be taken again by making planned interventions for different types of interaction. There were no negative opinions about Google Classroom in the study. However, it may be crucial for Google Classroom to integrate plugins such as Google Chat and Google Meet so that the instructor does not need to use a separate platform. Moreover, although students in this study expressed almost no negative opinions about Google Classroom, this situation may differ in different study groups. As a matter of fact, some studies in the literature have identified negativity towards Google Classroom. Additionally, the interaction levels perceived by the students can be determined by applying a scale for interaction from larger samples using Google Classroom, and the results can be compared with the results of the students who only use LMS.

Ethic

The requisite ethical clearances and permissions for the research were duly obtained from the academic institution in which the research was conducted. (16.04.2022, 159431)

Statements of publication ethics

I hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Conflict of Interest

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, author-ship, and/or publication of this article.

References

Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning: the challenges and opportunities. *Interactive learning environments*, 31(2), 863–875. https://doi.org/10.1080/10494820.2020.1813180

Akgün, Z., Hacıhasanoğlu, P., & Saydam, S. (2021). Determining the Adoption Level of Google Classroom Application: Sample of Yozgat Bozok University (YOBU) During Covid-19. Journal of University Research, *4*(3), 279-291. https://doi.org/10.32329/uad.902325

Alqahtani, A. 2019. Usability testing of google cloud applications: students' perspective. *Journal of Technology and Science Education (JOTSE), 9*(3), 326-339. https://doi.org/10.3926/jotse.585

Azhar, K. A., & Iqbal, N. (2018). Effectiveness of Google classroom: Teachers' perceptions. *Prizren Social Science Journal*, *2*(2), 52. Retrieved from https://www.ceeol.com/search/article-detail?id=940663

Barman, B., & Karthikeyan, J. (2019). Facilitating ELT through Moodle and Google Classroom. *Restaurant Business*, *118*(10), 506-518. Retrieved from https://www.researchgate.net/profile/J-Karthikeyan-3/publication/336952096_Facilitating_ELT_through_Moodle_and_Google_Classroom/links/5e3a6889299bf1cdb90e54ab/Facilitating-ELT-through-Moodle-and-Google-Classroom.pdf

Bates, A. W. T. (2018). *Teaching in a digital age: guidelines for desinging teaching and learning*. Vancouver BC: Tony Bates.

Carley, H. (2015). Going Green: The Paperless Classroom. Newsletter of the "Global Issues in Language Education" Special Interest Group (GILE SIG) of the Japan Association for Language Teaching (JALT), 91, 10-13. Retrieved from https://www.researchgate.net/publication/283540718_Going_Green_The_Paperless_Classroom

Council of Higher Education (2021a). Higher education information management system. Retrieved from https://istatistik.yok.gov.tr/

Council of Higher Education (2021b). Küresel salgında eğitim ve öğretim süreçlerine yönelik uygulamalar rehberi [A guide to practices for education and training processes in the global pandemic.] Retrieved from https://www.yok.gov.tr/Documents/Yayinlar/Yayinlarimiz/2021/kuresel-salginda-egitim-ve-ogretim-sureclerine-yonelik-uygulamalar-kilavuzu-2021.pdf

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches.* California: Sage.

Çınar, M., Doğan, D., & Seferoğlu, S. S. (2015). *Eğitimde dijital araçlar: Google sınıf uygulaması üzerine bir değerlendirme [Digital tools in education: An evaluation on Google classroom application]*. XVII. Akademik Bilişim Konferansı [Academic Informatics Conference], Eskişehir. Retrieved from http://enformatik.ankara.edu.tr/2015/02/18/%E2%99%A6-egitimde-dijital-araclar-google-sinif-uygulamasi-uzerine-bir-degerlendirme/

Google Classroom (2022). Classroom Support. Retrieved from https://support.google.com/edu/classroom/answer/6020279?hl=tr#

Gibbs, G. R. (2007). *Analyzing qualitative data*. London: Sage.

Graham, C. R. (2006). Blended learning systems. (Eds. Curtis J. Bonk & Charles R. Graham). *The handbook of blended learning*, 3-21.

Harjanto, A. S., & Sumarni, S. (2021). *Teachers' experiences on the use of google classroom.* English Language and Literature International Conference (ELLiC),Semarang, Indonesia. Retrieved from https://jurnal.unimus.ac.id/index.php/ELLIC/article/view/4704/4231

Karadeniz, O. (2023). Reflections of teacher candidates thoughts on the concept of "distance education" on their mind maps. *International Journal of Education Technology and Scientific Researches, 8*(21), 588-625. http://dx.doi.org/10.35826/ijetsar.579

Korkmaz, E. (2021). Distance education and google classroom in the Covid-19 pandemic era: Attitudes and views of prospective mathematics teachers. Journal of Kâzım Karabekir Education Faculty, 42, 207-228. https://doi.org/10.33418/ataunikkefd.831517

Kuo, Y. C., Walker, A. E., Belland, B. R., Schroder, K. E., & Kuo, Y. T. (2014). A case study of integrating Interwise: Interaction, internet self-efficacy, and satisfaction in synchronous online learning environments. *International Review of Research in Open and Distributed Learning*, *15*(1), 161-181. https://doi.org/10.19173/irrodl.v15i1.1664

Lincoln, S. Y., & Guba, E. G. (1985). *Naturalistic inquiry*. Thousand Oaks, CA: Sage

Miles, M. B., & Huberman, M. (1994). *Qualitative data analysis. An expanded sourcebook*. New Delhi: Sage.

Moore, M. G. (1989). Editorial: Three types of interaction. Retrieved from http://www.gwu.edu/~ed220ri/reading/Moore_Interaction.pdf

Patton, M. Q. (2014). *Qualitative Research & Evaluation Methods* (M. Bütün & S. B. Demir, Trans.). Ankara: Pegem.

Poyraz, G. T., & Özkul, A. E. (2019). Bir öğrenme ortamı olarak Google Sınıf'ın incelenmesi [An examination of Google Classroom as a learning environment.]. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi [Journal of Open Education and Research]*, *5*(3), 8-27. Retrieved from https://dergipark.org.tr/en/download/article-file/853587

Rovai, A. P. (2003). In search of higher persistence rates in distance education online programs. *The internet and higher education*, *6*(1), 1-16. https://doi.org/10.1016/S1096-7516(02)00158-6

Mohd Shaharanee, I. N., Jamil, J., & Mohamad Rodzi, S. S. (2016). The application of Google Classroom as a tool for teaching and learning. *Journal of Telecommunication, Electronic and Computer Engineering*, *8*(10), 5-8. Retrieved from https://repo.uum.edu.my/id/eprint/20521/

Pintrich, P. R., Smith, D. A. F., Garcia, T. & McKeachie, W. J. (1991). A manual for the use of the motivated strategies for learning questionnaire (MSLQ) (Tec. Rep. No. 91-B–004). Ann Arbor: University of Michigan, School of Education.

Rhode, J. S. (2008). *Interaction equivalency in self-paced online learning environments: An exploration of learner preferences.* Doctoral Dissertation. Capella University, School of Education, Minneapolis.

Salim, M. A., & Tresnadewi, B. Y. 2020. Effect of integrating google classroom and gba on the students' writing achievement across personalities. *International Journal of English and Education*, 9(1), 257-267. Retrieved from http://repository.um.ac.id/110103/

Sansinadi, I. T., & Winarko, W. (2020). Teacher's perspectives toward Google Classroom as a tool for improving ELT classroom interaction. *Getsempena English Education Journal*, *7*(2), 370-381. https://doi.org/10.46244/geej.v7i2.1174

Sukmawati, S., & , N. (2019). The role of Google Classroom in ELT. *International Journal for Educational and Vocational Studies*, *1*(2), 142-145. Retrieved from https://ojs.unimal.ac.id/ijevs/article/view/1526

Stern, D. M., & Willits, M. D. (2011). Social media killed the LMS: Re-imagining the traditional learning management system in the age of blogs and online social networks. In *Educating educators with social media* (Vol. 1, pp. 347-373). Emerald Group.

Ülker, F. T., Ünlü, S., & Usta, E. (2021). Review of the views of science teacher candidates on the use of e-portfolio: Action research. *Turkish Journal of Primary Education*, *6*(1), 1-17. https://doi.org/10.52797/tujped.747510

Wang, Q., Woo, H. L., Quek, C. L., Yang, Y., & Liu, M. (2012). Using the Facebook group as a learning management system: An exploratory study. *British Journal of Educational Technology*, *43*(3), 428-438. https://doi.org/10.1111/j.1467-8535.2011.01195.x

Yıldırım, A. & Şimşek, H. (2013). *Qualitative research methods.* Ankara: Seçkin.

Yılmaz, E. O. (2020). The integration of google classroom distance education system and investigation of student satisfaction levels in pandemic process. *Future Visions Journal*, *4*(3), 42-55. https://doi.org/10.29345/futvis.143

Yükselturk, E. (2009). Do entry characteristics of online learners affect their satisfaction?. *International Journal on E-Learning*, *8*(2), 263-281. Retrieved from https://www.learntechlib.org/primary/p/25266/

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: August 7, 2023
Accepted: September 23, 2023
http://dergipark.org.tr/rep

e-ISSN:2602-3733

September 2023 ◆ 7(2) ◆ 252-275

Research Article

https://doi.org/10.54535/rep.1338918

Adapting the Contextualized Reading Strategies Scale into Turkish Culture and Identifying its Psychometric Features

Pakize Urfalı Dadandı[1]

Yozgat Bozok University

Abstract

Reading comprehension is a complex cognitive process that necessitates the employment of various strategies before, during, and after reading. Researchers have developed a number of measurement tools to both identify these strategies and evaluate their extent of use among successful and poor readers. The aim of this study was to adapt the Contextualized Reading Strategies Scale (CReSS) into Turkish. The study data were obtained from two separate samples using a convenience sampling method. The first sample, Group A, was comprised of 435 secondary school students (F=246, M=189). The second sample, Group B, consisted of 384 secondary school students (F=228, M=156). The results of the exploratory factor analysis suggested a five-factor structure for the Turkish version of the CReSS, unlike the original version, which contains four subscales. This proposed new construct was further supported by confirmatory factor analysis, which yielded good fit indices. Furthermore, the reliability values were higher than the established threshold values for each subscale and for the whole scale. These results indicate that the Turkish version of the CReSS, with its robust psychometric properties, can be used as a valid and reliable measurement tool to assess the level of reading strategy utilization among Turkish secondary school students.

Key Words

Reading strategies • Contextualized scale • Scale adaptation • Secondary school students

[1] **Correspondance to:** Pakize Urfalı Dadandı, Yozgat Bozok University, Faculty of Education, Yozgat, Türkiye. E-mail: pakizeurfali@gmail.com **ORCID:** 0000-0002-8364-9408

Citation: Urfalı-Dadandı, P. (2023). Adapting the Contextualized Reading Strategies Scale into Turkish Culture and identifying its psychometric features. *Research on Education and Psychology (REP), 7*(2), 252-275.

Introduction

Reading is a tool to learn most of the information presented at school (Pierangelo & Giuilani, 2008), and the ability to make sense of a text is a very important element that supports or prevents students' academic development (Taylor, 2018). Students need reading skills to be successful not only in language classes but also in other academic fields. Reading skills help students to review what they have learnt at school, using different resources, taking advantage of the information in soft and hardcopy resources (Graham et al., 1993). Considering the components that require specialization, reading is an extraordinary skill (Graesser, 2007). It is necessary to analyse quite many structures even to understand a very short story. These can range from analysing words, sentences, paragraphs, syntax, topic, the desired message, structure of the characters, narrator, place and time, author's attitude, tone and viewpoint of the author to reaching new meanings. A competent reader, capable of reading 250 to 400 words per minute, can interpret and complete all of these processes without significant difficulty (Graesser, 2007). However, quality reading involves continuously adapting multiple cognitive processes (National Institute of Child Health and Human Development [NICHD, 2000]), and as a result, comprehension may not always occur effortlessly. In this process, the reader can have some problems and difficulties in comprehension. Therefore, there are some strategies to ensure that readers solve their problems and have a successful reading process. These are called "reading strategies" in the most general sense. These strategies are actions that readers of all levels can apply when reading various materials. They are called "strategies" because readers can implement them consciously and control how to use them after specialising in them. These are basic strategies used by readers before, during and after the reading process (Blachowicz & Ogle, 2008), and they help the reading process to run smoothly.

Teaching through strategies and working on texts in different ways originated from studies on development psychology, which puts forth that children will develop as they mature and which determines the active and strategic structure of learning, (McKeown et al., 2009). In the light of these studies, teaching strategy started to appear in studies on reading. Especially since 1980s, various reading strategies have been developed, tried and evaluated as it is accepted that strategies are important in improving reading comprehension (Souvignier & Mokhlesgerami, 2006). The studies conducted in the last 40 years also show that teaching reading strategies and using strategies in reading produce effective results (Baydık, 2011; Duke et al., 2011; Fielding & Pearson, 1994; Kırmızı, 2008; Özyılmaz & Alcı, 2011; Pesa & Sommers, 2007).

Reading comprehension is an active process that requires a deep connection with the text, and it is necessary to use certain strategies (Blachowicz & Ogle, 2008; Woolley, 2011). Readers make use of various cognitive and behavioral actions known as reading strategies in order to facilitate comprehension, which is the ultimate goal of reading (Graesser, 2007). These are basic strategies used before, during and after the reading process (Blachowicz & Ogle, 2008). Strategies help readers to complete the reading process successfully. Therefore, they are taught to students for a successful reading process which relies on a mental effort consisting of knowledge and organization about the cognitive process (Taraban et al., 2004). Apart from these, there are some other reasons why teaching strategies are crucial. First of all, the majority of readers do not know if they understand the text sufficiently or not. Using reading strategies helps individuals to evaluate and improve comprehension. Secondly, some of the readers mistakenly believe that they have understood the text; but in fact, they feel that they have understood it although they haven't. This is because they think reading words and

sentences without any difficulty is enough for comprehension. This is a very common misconception. In fact, a good understanding depends on reading the text deeply. Deep reading requires the reader to connect inferences and ideas consistently, evaluate the reality and validity of claims critically, and sometimes understand the basic motive of authors. Because of this reason, reading strategies help especially those who skim (those who are not able to grasp the deep meaning) with deep understanding, and correct their misconception about understanding the text. Finally, understanding technical texts is a problem for most readers. It is even more difficult for them to read a technical text deeply. These informative texts require the reader to have some previous knowledge as well as some ideas about various terms and concepts. Therefore, reading strategies offer an opportunity of intervention in order to enhance readers' understanding at this point (Graesser, 2007). However, it's not always possible to use an appropriate strategy for reading, specifically strategic reading. For example, students may not know the appropriate strategies for their problems; they might not know when to use the strategies they know, or especially young children might be discouraged to use some strategies (Gersten et al., 2001). Therefore, the process of teaching strategies should adopt an approach that focuses on teaching students how and when to use these strategies as well as encouraging them to use the strategies they have learnt. Furthermore, use of strategies depends on not only readers' processing skills but also their area of knowledge and the related tasks (Taraban et al., 2004). As the goal of such a teaching process is to improve students and help them to be a successful reader, students' features should also be considered while teaching the strategies.

Successful readers do comprehension actively by using various comprehension strategies when they read the texts. These readers make use of various strategic cognitive processes in order to choose, organize, connect and evaluate what they have read. These strategies include asking questions, making connections and inferences. Moreover, successful readers use their current knowledge to understand the new ideas they meet in the texts more clearly, to forecast what may happen later and to make reasoning strategically, when they have comprehension barriers (Coiro & Dobler, 2007). Good readers know that they can control the reading process. As they read, they actively work out meaning, and they guide their own comprehension. Additionally, they know what a reading process is like, because they know about sounds, letters and words ("declarative" knowledge), and they also know which strategies to use to help with their comprehension ("procedural knowledge"), and when to use them ("conditional" knowledge) (Blachowicz & Ogle, 2008). The type of the text is also very important at this point. Researchers claim that good readers have a comprehension plan for different text types and different learning tasks (Blachowicz & Ogle, 2008). Especially informative texts require readers to know the structural features of the text, interpret the information that they are expected to reach and evaluate certain sections in the text in terms of their suitability to the text goal (Coiro & Dobler, 2007). Most of the time, reading process occurs in order to get information for academic purposes or for some other personal reasons. In fact, the latest reports on current reading processes by students and adults alike show that not only secondary and high school students but also adults mostly read to get information. To get information in general, people read contents such as newspapers, magazines, leaflets, manuals, user's guides for home appliances, prospectuses for medicines, recipes, travellers' guides, weather forecast, economics, directions, academic studies, homework and much more. As it is now much more common to meet informative texts than before, materials in most programs and exams have started to include reading content at least 50% in many countries (e.g. the USA) in recent years (Blachowicz & Ogle, 2008). Strategic reading has gained more importance due to many cases such as understanding informative texts, remembering them, identifying the important parts, associating with previous

knowledge, critically read and analyse the bulk of information coming from different sources in today's world where flow of information is too much. According to a report issued by National Reading Panel (NRP), there are seven individual strategies supported by strong evidence to enhance comprehension. These strategies include following comprehension, cooperative learning, using graphical and semantic organizers, using the technique of question and answer, asking questions, teaching the structure of a story or text, and making a summary. The report summarizes the studies in all fields and portrays the general success (McKeown et al., 2009). In fact, studies conducted in the last twenty years on reading have created a comprehensive range of reading strategies adopted by readers. These strategies, which are more general, include reviewing, scanning, understanding the stimulant schemas that have been conceptualized more recently, identifying text structure, visualizing, asking a question, following comprehension and evaluating the use of strategies (Madhumathi & Ghosh, 2012).

As many school tasks are performed by reading materials including texts, students should be competent in reading comprehension (Zimmerman et al., 1996). However, it is a known fact that many individuals have difficulty in the reading process which requires the organization of a series of complex transactions (Denton et al., 2015). Teaching reading strategies to help individuals solve their reading problems improves the reading comprehension skills of readers who have various skills. This improvement appears when teachers show and explain students how to understand a text, be a role model for that and have them practice it (NICHD, 2000). This teaching process also provides teachers with some information about their students, because using reading strategies makes it possible for students to know how they visualize the text, how they make sense of it, and what they do when they don't understand (Madhumathi & Ghosh, 2012). Thus, it gets easier to understand the reason underlying students' comprehension problems, which creates the opportunity to teach the necessary strategy. At this point, it's important to decide how to measure and evaluate students' current use of strategies. The literature review shows that there are various measurement tools that have been developed to measure students' use of reading strategies. These measurement tools are Likert-type scales including items about strategies used before, during and after the reading process (e.g. Çöğmen & Saracaloğlu, 2010; Karatay, 2009; Mokhtari & Reichard, 2002; Öztürk, 2012).

Comprehension, the ultimate goal of reading, is a strategic process, and the study findings in the literature support this view (Blachowicz & Ogle, 2008). For instance, according to the report by National Reading Panel (NRP), practices ranging from a few-hour preparation studies to more intense teaching sessions make it possible that use of strategies enhances reading success. These studies also reveal that readers learn reading strategies and use them effectively in the reading process (NICHD, 2000). Although it is widely accepted in the literature that use of strategies has a significant role in the reading process, the focus of the discussions has changed. One of the main reasons is that some study findings contrast with each other about the effect of using strategies on the reading process. This might result from the structure of the scales. In fact, some readers can give responses that do not reflect themselves correctly when scales based on self-evaluation are used. Readers can state that they use some strategies even though they are poor readers and do not actually use any reading strategies in the process. It can be even more difficult to self-evaluate through Likert-type scales for younger children. What is meant here is not that students give false information intentionally, but when they see an item saying something like "I take notes," they may consider themselves as doing this more frequently although they have done this only a few times. Therefore, it is important that measurement tools provide students with the opportunity to evaluate themselves in a more detailed and objective way. Focusing on a measurement tool designed differently from the

ones previously developed in the literature, the current study aims at adapting the "Contextualized Reading Strategies Scale," which provides students with various scenarios in order to identify which strategies they use or whether they use a strategy or not for the created content. Instead of asking students how often they use a strategy, this scale will enable the identification of what they do during a specific reading task, providing more detailed information about the use of strategies. The most important and distinguishing feature of this scale is that students' responses directly focus on life experiences. Students think about the question considering a real case and accordingly give responses. Therefore, this scale also helps participants to overcome the difficulties of making a realistic evaluation faced especially in scales based on self-evaluation.

Method

Study groups

The psychometric features of the Turkish form of CReSS (CReSS-TF) were examined by collecting data from three different sample groups. Study group A was composed of 435 (F=246, 56.6%; M=189, 43.6%) secondary school students. 29.4% (n=128) of the students were 5th graders, 18.6% (n=81) of them were 6th graders, 16.8% (n=73) of them were 7th graders and 35.2% (n=153) of them were 8th graders. The average age of this group was 12,24 (SD= 1,27), while the participants' ages varied between 9 and 15. Study group B was composed of 384 (F=228, 59.4%; M=156, 40.6%) secondary school students. 24.7% (n=95) of the participants were 5th graders, 23.2% (n=89) of the participants were 6th graders, 22.1% (n=85) of the participants were 7th graders and 29.9% (n=115) of them were 8th graders. The average age of this group was 12,08 (SD= 1,18), while the ages of the participants varied between 10 and 15. Study group C was composed of 54 university students studying English Language Teaching at a state university in Türkiye (F=31, 57.41%, M=23, 42.59%). The average age of this group was 21.58 (SD=1.02), while the participants' ages varied between 20 and 25.

The sample groups were formed via convenience sampling method. Convenience sampling is a method that envisages conducting the study with a study group that is easy to reach in order to save time, money and effort (Büyüköztürk et al., 2014). Although this method has some limitations in terms of the representative power of the sample and generalization of the study results; it is one of the most commonly used, and even sometimes the only method of data collection in educational studies (Weathington et al., 2010). In the current study, participants with different demographic features were chosen in order to compensate the limitations of convenience sampling method (Gravetter & Forzano, 2012).

Measures

Contextualized Reading Strategies Scale-Original Form (CReSS-OF)

Contextualized Reading Strategies Scale (CReSS) was developed by Denton et al. (2015). The scale is a 5-point Likert type scale, and it consists of 26 items and four factors related to four cases. These factors are "evaluation and integration", "note-taking", "regulation" and "help-seeking". The scale was developed with the data collected from secondary school students. The reliability coefficient for the whole scale was found to be .90. Reliability coefficient values were .90 for the sub-scale of evaluation and integration, .87 for note-taking, .81 for regulation and .71 for help-seeking. This four-dimensional structure explains 49% of the total variance. In line with the findings, the scale was reported to be a reliable and valid measurement tool (Denton et al., 2015).

The Metacognitive Awareness of Reading Strategies Inventory (MARSI)

The original form of the scale was developed by Mokhtari and Reichard (2002). The scale was developed to evaluate the metacognitive awareness and perceptions of adult and adolescent readers about their use of reading strategies while reading school materials (Mokhtari & Reichard, 2002). The scale was adapted into Turkish culture by Öztürk (2012). The Turkish form of the scale consists of three sub-scales, which are "general reading strategies", "problem solving strategy" and "supporting reading strategies." It is a 5-point Likert type scale including 30 items. The ratings of the items include "Never or hardly ever"= 1, "Rarely"= 2, "Sometimes"=3, "Generally"=4 and "Always or almost always"=5. Therefore, the scale's scores can range from a minimum of 30 to a maximum of 150 (Öztürk, 2012).

The scale was adapted into Turkish culture by Öztürk (2012) with the data collected from 250 students studying at schools in the province of Sakarya. The construct validity of the Turkish form was tested via explanatory and confirmatory factor analysis. The three-factor construct obtained at the end of the explanatory factor analysis was reported to explain 42.6% of the total variance, while item factor loads varied between .36 and .75. After conducting the explanatory factor analysis, the construct was tested via confirmatory factor analysis. The goodness of fit indices were found to be as follows: $\chi 2/df=1.54$ RMSEA=0.047, SRMR=0.054, GFI=0.86, AGFI=0.85, CFI=0.98, NFI=0.94, IFI=0.98 and NNFI=0.98. The Cronbach's alpha internal consistency coefficients to test the reliability of the scale were reported as .85 for the sub-scale of "general reading strategies", .76 for "problem solving strategies" and .81 for "supporting reading strategies", and .93 for the whole scale (Öztürk, 2012).

Procedure

Intercultural Adaptation Procedure

First of all, the researcher got in touch with the corresponding author, Carolyn A. Denton in order to adapt CReSS into Turkish culture. In line with the suggestion by Carolyn A. Denton, the researcher decided to conduct the adaptation procedure with the pilot study form of 49 items, not with the final form of CReSS as the items that would work in the Turkish culture might be different. The translation process of CReSS into Turkish language was conducted via the procedure suggested by Gjersing and colleagues (2010) for the intercultural adaptation of study instruments. In this line, first of all, the original item pool of CReSS was translated into Turkish culture by two language experts independently. Then these versions were synthesized in one form by another language expert. Secondly, the synthesized version was back-translated by two other language experts, and these forms were synthesized in one form by a third language expert. The synthesized translated and back-translated forms were examined for linguistic and cultural validity by a committee of 7 members including 2 language experts, 3 field experts, and 2 measurement and evaluation experts. This committee of experts evaluated the items in terms of language, theoretical background and meaning. Some of the items were amended in line with the expert opinions, and an item pool was created for CReSS-TF. The item pool was evaluated via two pilot studies. Firstly, the Turkish and English forms were administered to 54 bilingual university students twice with an interval of two weeks. Secondly, the Turkish form was administered to a group of 43 secondary school students in order to evaluate the understandability of the items. In line with the data obtained from the pilot study, some expressions and words that were identified to have a low level of understandability were changed and sent to the expert committee again. Considering the expert opinions, the draft form of CReSS-TF was created for further analysis.

Study Procedure

The psychometric features of CReSS-TF were examined in two steps. Firstly, the draft form including 49 items was administered to study group A. The data were used to assess the construct validity of the scale through explanatory factor analysis. The form obtained at the end of the explanatory factor analysis was administered to study group B. The data were used to conduct confirmatory factor analysis and create the final form of the scale. The forms were administered by the researcher in class in one session.

Participation in this study was voluntary. Furthermore, the participants were informed about the study purpose, anonymity of the data, rejecting participation and withdrawing from the study any time they wanted. All the procedural steps in this study were conducted in line with Helsinki Declaration, and approved by Yozgat Bozok University Ethical Committee.

Data Analysis

Before starting the main analysis, a data screening procedure was conducted for outliers, systematic responses, and missing data. The responses with a missing value over 5% were removed from the data set. Those with a missing value lower than 5% were completed via the method of series rank (regression replacement in CFA). Then the data input was reviewed to ensure there were no erroneous entries. Data analysis was conducted via statistics package programs of SPSS 26.0 and Amos 22.0.

Construct validity of CReSS was evaluated via explanatory factor analysis. Before starting explanatory factor analysis, the suitability of the data set for the factor analysis was examined via the Bartlett Sphericity Test and Kaiser-Meyer-Olkin (KMO) sampling adequacy criteria. KMO value, which aims to evaluate the adequacy of the sample size, was between 0 and 1. This value is expected to be .70 or higher. Barlett test, which aims to identify if the data set shows multivariate normality or not, is expected to be significant (Seçer, 2015). The reliability of the scale was also tested via the methods of internal consistency, split-half reliability and test-retest.

After the explanatory factor analysis, the factor construct of CReSS was tested via confirmatory factor analysis again. Before the analysis, the responses in the data set were examined in terms of the assumptions of confirmatory factor analysis (outliers, missing value, multivariate normality). Cut-off values for fit indices taken as a reference in CFA are as follows: (1) the ratio of $\chi 2$ to the degree of freedom ($\chi 2/df$) <3, (2) comparative fit index (CFI) >.95, (3) Tucker-Lewis index (TLI) >.90, the root mean square error of approximation (RMSEA) <.08 and the standard root mean square residual (SRMR) <.09 (Hu & Bentler, 1999; Kline, 2011).

Results

Cultural Equivalence and Content Validity

In the pilot study, 54 bilingual university students responded to the Turkish and English forms of CReSS with an interval of two weeks. There was a high level of correlation between the original form of the scale and the Turkish version (r= .82, p< .001). Furthermore, a committee of 7 members who were all experts in language, methodology and the related field rated each item on 4-point scale (1= not appropriate at all, 2= should be improved, 3= appropriate, 4= very appropriate) in terms of linguistic, cultural and conceptual appropriateness. The means for the linguistic appropriateness of the scale varied between 3.28 and 3.86; the values varied

between 3.42 and 3.86 for conceptual appropriateness. These results showed that CReSS had a high level of linguistic-cultural equivalence and content validity.

Results of Explanatory Factor Analysis

When scales are adapted to a new culture, changes in the scale's structure might occur due to cultural differences or factors stemming from item translation. The authors suggest that, to demonstrate structural validity, adaptation studies should begin with exploratory factor analysis (EFA), and subsequently conduct confirmatory factor analysis (CFA) using a different dataset, emphasizing that CFA alone may not identify potential structural changes (Orçan, 2018). In line with this recommendation, a standard EFA procedure, without limiting the number of factors, was first performed on the CReSS-TF in this study, to determine potential structural changes. Explanatory factor analysis was conducted to identify the factor construct of CReSS-TF. First of all, the KMO and Barlett values as well as anti-image correlation matrix were examined in order to test the appropriateness of the data for factor analysis. It was observed that KMO value was .92, Barlett sphericity test was significant (X^2=6782.03, df=1176, p< .001), and cut-off values in the anti-image correlation matrix were higher than .50 (Can, 2014). These results showed that the study data were appropriate for factor analysis.

Explanatory factor analysis was conducted via the method of principal components factor analysis and without limiting the number of factors. The initial analysis resulted in 11 factors which explained 55.92% of the total variance and had eigenvalue higher than 1. In order to clearly identify the factor construct of the scale, the analysis was repeated by removing the items which (a) were not located under any of the factors, (b) had a factor load lower than .40, (c) were cross-loaded on multiple factors. After the removal of 22 items, the final outcomes were ascertained. Subsequently, a comprehensive analysis yielded a five-factor construct comprising a total of 27 items for the CReSS-TF scale, diverging from its initial configuration. This five-factor construct explained 50.85% of the total variance. The contribution of the first factor to the total variance was 26.78%, while this value was 7.73 for the second factor, 6.87 for the third factor, 4.86 for the fourth factor and 4.61 for the fifth factor. Furthermore, it is noteworthy that all the items demonstrated factor loadings exceeding the threshold of 0.40, and there was an absence of items that exhibited cross-loading tendencies. Figure 1 below shows the Scree Plot as to the factor construct of the scale, and Table 1 below shows the results of the factor analysis.

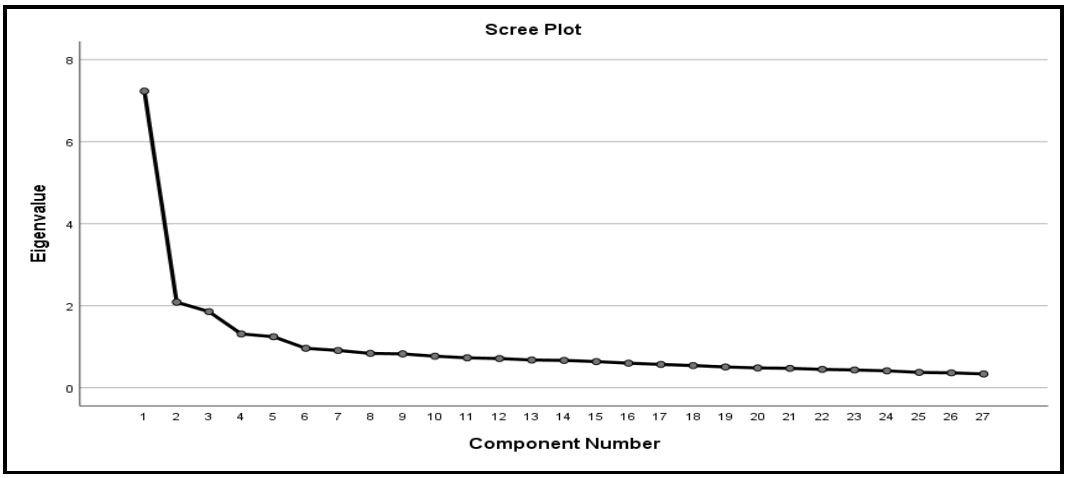


Figure 1. Scree Plot

Table 1

Results of Factor Analysis for CReSS-TF

Factor	Eigenvalue	Explained Variance	Items	Factor loadings				
				1	2	3	4	5
Integration	7.43	26.78	4	.48				
			18	.54				
			19	.46				
			20	.65				
			21	.71				
			24	.49				
			38	.64				
			43	.43				
			44	.55				
			45	.63				
			46	.54				
Help Seeking	2.09	7.73	15		.79			
			29		.78			
			42		.76			
Note Taking	1.78	6.87	5			.67		
			7			.55		
			9			.64		
			25			.53		
Regulation	1.28	4.86	28				.68	
			30				.68	
			32				.77	
			39				.74	
Evaluation	1.23	4.61	17					.62
			22					.67
			23					.77
			26					.53
			37					.67

In the original form of CReSS, the factor “Evaluation and Knowledge Integration (Integration)” includes 14 items (17, 21, 22, 23, 24, 34, 37, 38, 43, 44, 45, 46, 47 and 49). However, in the current study, the factor analysis showed that these items were divided into two factors in CReSS-TF: Factor 1 included 11 items (4, 18, 19, 20, 21, 24, 38, 43, 44, 45 and 46), Factor 5 included 5 items (17, 22, 23, 26 and 37). Considering the loads and contents of the items in the original form, Factor 1 was called “Knowledge Integration (Integration)”, and Factor 5 was called “Evaluation” in CReSS-TF.

In the original form of CReSS, the factor “Help-Seeking” includes 3 items (15, 29 and 42). Similarly, within the context of CReSS-TF, items numbered 15, 29, and 42 were observed to load onto Factor 2. Consequently, Factor 2 retained its designation as "Help-Seeking," mirroring the nomenclature employed in the original iteration of the scale. In the original manifestation of CReSS, the factor denoted as "Note-Taking" encompassed a triad of items, specifically, items 5, 7, and 9. However, in CReSS-TF, items number 5, 7, 9 and 25 were loaded on Factor 3. Considering the original form of the scale and the fact that item number 25 highlights a theme similar to other three items, Factor 3 was called “Note-Taking”. In the original form of CReSS, the factor “Regulation” includes 6 items (8,14,28,30,32 and 39). The results of the factor analysis in the current study showed that items number 28, 30, 32 and 39 were loaded on Factor 4 in CReSS-TF. Therefore, this factor was called “Regulation”.

Results of Confirmatory Factor Analysis

Confirmatory factor analysis was conducted with the data gathered from the study group B in order to evaluate the five-factor model fit of CReSS-TF. The first analysis showed that model data fit was acceptable. X^2= 597.55$_{(df=314,\ N=384)}$, p<.05; x^2/df= 1.90; CFI= .91; TLI= .90; RMSEA= .049, p> .05, %90CI (.043, .054); SRMR= .049. However, factor loads of items 4 and 19 were lower than .40. Subsequently, these two items were excised from the assessment instrument, and a repetition of the analytical procedures ensued. This way, model data fit got better (X^2= 475.74$_{(df=265,\ N=384)}$, p<.05; x^2/df= 1.80; CFI= .93; TLI= .92; RMSEA= .046, p> .05, %90CI [.039, .052]; SRMR= .047). In structural equation modelling (SEM), researchers are recommended to evaluate the suggested modification indices considering the theoretical appropriateness in order to enhance the model data fit (Byrne, 2010). In the current study, modification indices were examined, and it was found out that there were measurement errors as to the relationship between the items as follows: items 20 and 21, items 20 and 46, items 43 and 44, items 7 and 9. Therefore, the model was amended by adding covariance between these errors. The analysis of the modified model showed very good fit indices: (X^2= 430.19 $_{(df=261,\ N=384)}$, p<.05; x^2/df= 1.64; CFI= .94; TLI= .95; RMSEA= .041, p> .05, %90CI [.034, .048]; SRMR= .044). Moreover, factor loads of all items were higher than .40 and statistically significant. Consequently, the CFA results suggest that the 5-dimensional structure with 25 items offers a better fit to the data compared to the 27-item structure. Hence, the 5-dimension, 25-item structure suggested by the CFA was adopted as the final form of CReSS-TF. The subdimensions and items encompassed in the final form can be seen in Figure 1, which provides the CFA results.

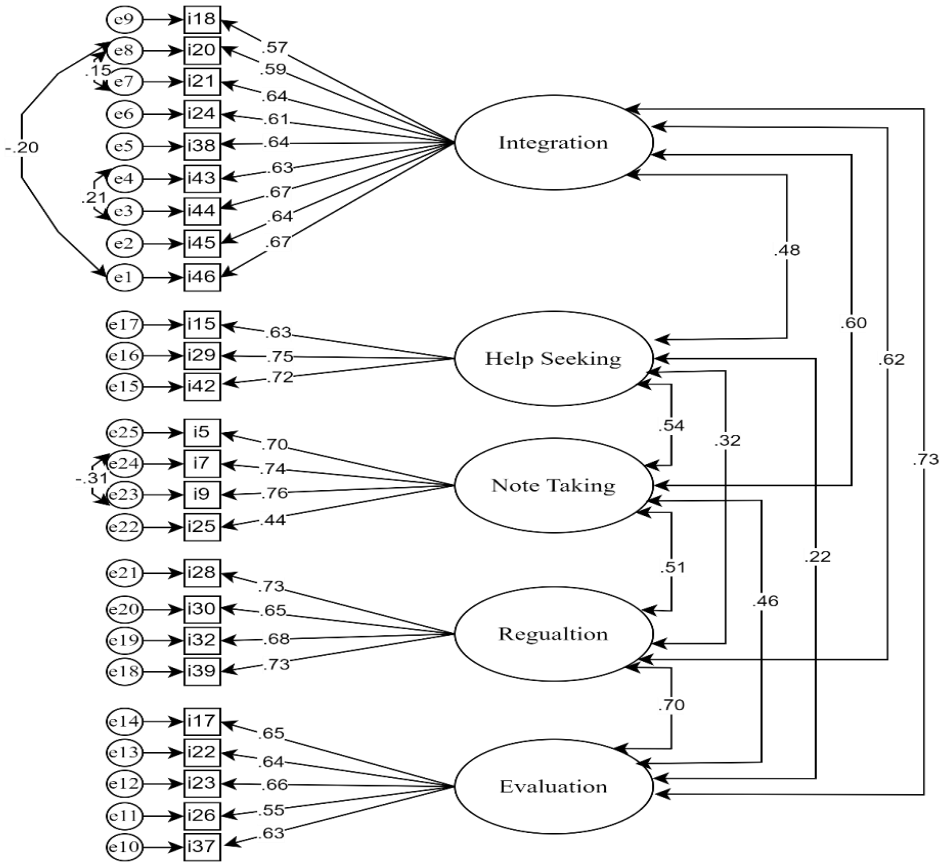


Figure 2. Results of confirmatory factor analysis

Criterion Related Validity

In the current study, Pearson correlation was calculated with MARSI scale in order to examine the criterion related validity of CReSS. Table 2 below shows the related results. As is seen in Table 2, MARSI is significantly related to Integration ($r_{(433)}$= .61, p < .001), Help Seeking ($r_{(433)}$= .26, p< .001), Note Taking ($r_{(433)}$= .42, p< .001), Regulation ($r_{(433)}$= .40, p< .001), and Evaluation ($r_{(433)}$= .51, p< .001). Moreover, there was a medium level statistically significant relationship between CReSS and MARSI ($r_{(433)}$= .60, p< .001).

Table 2

Pearson correlations between CReSS-TF and MARSI

	1	2	3	4	5	6	7
1.Integration							
2. Help Seeking	.22*						
3. Note Taking	.44**	.48**					
4. Regulation	.42**	.08	.24**				
5. Evaluation	.55**	-.28	.31**	.51**			
6. CReSS Total	.62**	.50**	.74**	.71**	.72**		
7. MARSI Scale	.61**	.26**	.42**	.40**	.51**	.60**	

** p < .001

Results Regarding Reliability Analysis

Reliability analysis of CReSS was conducted with the data gathered from the Study Group A. In this context, Cronbach alpha, McDonald Omega and split half reliability coefficients were calculated. Table 3 below shows the related results.

Table 3

Results of Reliability Analysis

Factor	Cronbach alfa	McDonald Omega	Split half reliability
Integration	.82	.83	.77
Help Seeking	.71	.73	.68
Note Taking	.70	.71	.65
Regulation	.74	.75	.62
Evaluation	.72	.72	.70
CReSS Total	.88	.88	.76

As depicted in Table 5, the calculated Cronbach's alpha coefficients manifest values of .82 for the Integration subscale, .71 for Help Seeking, .70 for Note-Taking, .74 for Regulation, .72 for Evaluation, and an overarching .88 for the entirety of the scale. Correspondingly, the McDonald's Omega coefficients are reported as .83, .73, .71, .75, .72, and .88 for the respective sub-scales of Integration, Help Seeking, Note-Taking, Regulation, and Evaluation, along with an aggregate coefficient of .88 for the overall scale. Additionally, the split-half reliability coefficients are established at .77, .68, .65, .62, .70, and .76 for the Integration, Help Seeking, Note Taking, Regulation, Evaluation subscales, and the composite scale, respectively.

Discussion, Conclusion & Suggestions

The current study aims at adapting the “Contextualized Reading Strategies Scale”, which intends to identify students’ use of reading strategies through various contextual scenarios, into Turkish culture. For that purpose,

the original draft form of CReSS was translated into Turkish, and then its psychometric features were examined. The results show that CReSS has a good linguistic-cultural equivalence as well as validity and reliability.

The results of factor analysis put forth a five-factor model with 27 items for CReSS-TF, and this explained 50.85% of the total variance. The contribution of the first factor to the total variance was 26.78%, while this value was 7.73 for the second factor, 6.87 for the third factor, 4.86 for the fourth factor and 4.61 for the fifth factor. One of the criteria evaluated in explanatory factor analysis is the value of factor load. Factor load value refers to standardized regression coefficients that explain the relationship between the items and factors, and it implies how much the variable measures the factor. In this respect, load values of the items in the factors they belong to are expected to be significant and high statistically (Çokluk et al., 2014). There is a disagreement in the literature about the lowest factor load values of items. Although generally accepted value is .50 and higher (George & Mallery, 2016), it is stated that this value can go down up to .30 (Costello & Osborne, 2005; Tabachnick & Fidell, 2007). In the current study, this value was not lower than the critical value of .30. Factor loads were higher than .40 for all items, and there were no cross-loaded items.

In a scale development or adaptation scale, it is suggested that the construct explained via explanatory factor analysis should be tested via confirmatory factor analysis (Evci & Aylar, 2017). In this line, the five-factor construct suggested by the explanatory factor analysis was tested via confirmatory factor analysis in the current study. Confirmatory factor analysis produced a very good model-data fit (x^2= 430.19 $_{(df=261,\ N=384)}$, p< .05; x^2/df= 1.64; CFI= .94; TLI= .95; RMSEA= .041, p> .05, %90CI [.034, .048]; SRMR= .044). As a result of this analysis, two items (4 and 19) were removed from the assessment tool, resulting in the final form of the CReSS-TF consisting of 25 items. Additionally, it is noteworthy that the factor loadings for all items surpassed the threshold of 0.40, and their statistical significance was duly established. In conjunction with the fit indices, these findings substantiate the validation of the five-factor model proposed by the explanatory factor analysis.

A scale is accepted to be reliable when reliability coefficients are over .70 (George & Mallery, 2016). According to the reliability values of the original CReSS and CReSS-TF, Cronbach alpha for the whole scale of the original form was .90, while it was .88 in the Turkish form. This result shows that both scales have a similar reliability value, and the Turkish form is at an acceptable level. Moreover, the original form explained 49% of the total variance, while the Turkish form explained 50.85% of it. Criterion related validity of CReSS was tested by calculating Pearson correlations with MARSI, a scale used in Türkiye, and it was found out that both scales were correlated at a statistically significant medium level.

Psychometric analysis revealed some differences in the construct of CReSS from the original scale. While CReSS consists of 26 items and 4 factors (Evaluation and Knowledge Integration (Integration)", "Help-Seeking", "Note-Taking" and "Regulation), CReSS-TF includes 25 items and 5 factors. Specifically, CReSS's sub-scale of Evaluation and Knowledge Integration (Integration) was divided into two different sub-scales as "Knowledge Integration" and "Evaluation" depending on item contents in CReSS-TF. In CReSS, the sub-scale "Evaluation and Knowledge Integration" has 14 items, 7 of which (21, 24, 38, 43, 44, 45 and 46) are included in the sub-scale of "Knowledge Integration" and 3 of which (17, 22 and 23) are included in the sub-scale of "Evaluation" in CReSS-TF. In addition, the sub-scale of "Knowledge Integration" in CReSS-TF includes 2 more items from the item pool (18 and 20), the sub-scale of "Evaluation" included 2 new items (26 and 37). Additionally, the sub-scale "Note taking" includes 1 more item (item 25), while the number of items decreased

from 6 to 4 in the sub-scale of "Regulation" in CReSS-TF (item number 8 and 14 were removed). Lastly, the sub-scale "Help-Seeking" is consistent with the original form of the scale.

Considering the final form of CReSS-TF, one of the important differences is that 4 items added to Factor 1, which is "Knowledge Integration" and one item added to the sub-scale "note taking" did not fall under any sub-scales in the original scale. When the contents of the items are considered, this can be about the reading program implemented. In Türkiye, learning objectives of secondary school reading skill include activities and practices about these four items (Ministry of National Education [MoNE], 2019). Therefore, these items might have a counterpart in the Turkish culture in line with the educational programs. However, two items included in the sub-scale of "Regulation" in the original scale do not appear in the Turkish form. This might also be about the teaching process that affects students' behaviours. Given that instructional activities within Turkish language classes predominantly hinge upon post-reading vocabulary exercises, it is conceivable that such pedagogical practices may exert an influence on students' inclination to interrogate the semantic connotations of words in the course of their reading endeavours. In Türkiye, exercises about dictionary meaning are preferred instead of context-based activities in teaching vocabulary. Therefore, it is possible to state that the two items not included in the Turkish form are about practices with which Turkish students are not familiar culturally. Çapık et al. (2018) point out that the disparities in language and culture influence outcomes of scale adaptation studies; the broader these disparities, the greater the impact on outcomes. Furthermore, they argue that the psychometric properties of an adapted scale can differ from its original form, even when two cultures share similar characteristics. For that reason, due to the dynamic nature of culture, items can be added, removed, or altered on the scale in scale adaptation studies (Akbaş & Korkmaz, 2007). Therefore, the differences between the original and the Turkish versions of CReSS may stem from the cultural and language differences between the country where the original form was developed and Turkey. In fact, reading skills develop not only through school life and curriculum but also through cultural influences. The family and the surrounding environment play crucial roles in shaping children's reading abilities and habits. Given that reading habits and the values attributed to reading might differ between the two communities, such variations could have influenced the adaptation study. While the original scale was derived from a multicultural cohort, the adaptation was based on a culturally more homogenous sample. Consequently, there might be differences between the two versions.

The sub-scales "Knowledge Integration" and "Evaluation", which are one sub-scale in the original form of CReSS, have become two different sub-scales with newly-added items in the Turkish form. The construct which is only one factor in the original scale has been divided into two factors in the Turkish form, which is one of the most important findings of cultural and linguistic adaptation process. This difference might result from the educational system, learning periods during the grades, teaching process or activities about reading skill of the two cultures. For instance, primary school education lasts longer in the USA, where the original scale was developed, than Türkiye, and its structure is different, as well. While educational system has a 4+4+4 structure in Türkiye, there are different structures like 6+6, 6+3+3, 4+4+4 or 8+4. Besides, a centralist management perspective is dominant in Türkiye, whereas a local perspective is preferred in the USA (Baş, 2013). Also, the newly-added items might have contributed to make a clear distinction between these two dimensions. The sub-scale of "help-seeking" in the original scale is the same in the Turkish form. All three items under this factor include a demand for the reading process, and these items seem to represent the same construct in the two cultures.

Explaining what the dimensions of the scale mean in the context of reading strategies will contribute to a better understanding of the scale. The first dimension, "Evaluation" includes items on the process of comprehension and deduction. In the dimension called "Evaluation", students getting a high score are strategic readers who can evaluate the pieces of information in different parts of the text as a whole and organize the ideas in the text and own reading goals together (Denton et al., 2015). Students who use this strategy explain the content themselves, create analogies, prepare hypothesis, make predictions, ask questions and make evaluations according to the internal consistency of the text and what they know about the text (Kintsch & Kintsch, 1996, as cited in Kintsch & Kintsch, 2005).

The second dimension, "Knowledge Integration (Integration)" includes items that focus on integrating prior knowledge with the information in the text, comparing them, making deduction and monitoring the comprehension process. Students who get a high score in this dimension are strategic readers who try to integrate their prior knowledge with the information in narrative and informative texts (Denton et al., 2015). The act of associating a given text with pre-existing knowledge entails the cognitive process of conjoining antecedent knowledge with the concepts and content encapsulated within the text. This cognitive operation encompasses the discernment of similarities, the identification of illustrative examples, the incorporation of supplementary information, and the drawing of comparative parallels (Zimmerman et al.,1996).

The third dimension, "Note-Taking" is about defining, organizing and recording the information in the text. Taking notes improves students' skills to choose the important information while reading and explain it as well as reviewing, organizing and evaluating the notes that have been taken (Denton et al., 2015).

The fourth dimension, "Regulation" includes performing goal-oriented activities such as monitoring the process of comprehension while reading, re-reading or deep reading when it is difficult or impossible to comprehend the text (Denton, et al., 2015). Regulation involves processes that are often highlighted in the literature within the framework of reading strategies such as monitoring the comprehension process consciously, identifying the source of comprehension failure, and solving the problem instead of reading passively (Kintsch & Kintsch, 1996, as cited in Kintsch & Kintsch, 2005).

The fifth dimension, "Help-Seeking" includes items on seeking help from peers, teachers or any other adult during the reading process. Students who get a high score in this dimension get or seek help from people around them to better understand the text or solve the problems they face in the text when they have a difficulty during the reading process.

Limitations and Implications

The current study has some limitations. Firstly, the number of female students was higher than the number of male students in the study group. As previous studies show that gender affects reading performance, the number of male and female participants can be more homogenous in the future studies. Secondly, the study group is composed of 5^{th}, 6^{th}, 7^{th} and 8^{th} grade students. However, the number of the 5^{th} and 8^{th} graders was higher than the others. The level of using reading strategies can vary according to the class level in Türkiye, because students learn different reading strategies in each grade according to the Turkish curriculum. The number of students can be more homogenous in terms of grade in the future studies.

Conclusion

This scale adaptation study provides an opportunity to evaluate students' level of using reading strategies through contextualized cases in different languages and cultures. CReSS-TF, which has 5 factors and 25 items, is a measurement tool having reliable values in order to identify students' level of using reading strategies in the Turkish culture. Turkish educators and scholars can employ the aforementioned scale as a diagnostic tool to ascertain the proficiency of students in the employment of reading strategies. The attainment of a heightened score on the scale is indicative of a proclivity for strategic reading, denoting the active utilization of various reading strategies. Conversely, a lower score on the scale conveys a lower degree of engagement with reading strategies, implying a comparatively limited utilization thereof by the students.

Ethic

This study was approved by the Yozgat Bozok University Ethics Committee (Date: 20/04/2022, Approval Number: 32/27).

Funding

No financial support was received from any institution in this study.

References

Akbaş, G., & Korkmaz, L. (2007). Ölçek uyarlaması (adaptasyon) [Scale adaptation]. *Türk Psikoloji Bülteni* [Turkish Psychological Bulletin], *13*(40), 15-16.

Baş, G. (2013). Amerika Birleşik Devletleri eğitim sistemi: Karşılaştırmalı bir çalışma [American education system: A comparative study]. *Journal of Educational Science*, *1*(1), 63-93.

Baydık, B. (2011). Okuma güçlüğü olan öğrencilerin üstbilişsel okuma stratejilerini kullanımı ve öğretmenlerinin okuduğunu anlama öğretim uygulamalarının incelenmesi [Examining the use of metacognitive reading strategies of students with reading difficulties and their teachers' reading comprehension instruction practices]. *Eğitim ve Bilim* [Education and Science], *36*(162), 301-319.

Blachowicz, C., & Ogle, D. (2008). *Reading comprehension: Strategies for independent learners* (2nd ed.). New York, NY: The Guilford Press.

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö. E., Karadeniz, Ş. ve Demirel, F. (2014). *Bilimsel araştırma yöntemleri* [Scientific research methods]. Ankara, Turkey: Pegem Akademi.

Byrne, B. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd ed.). New Yok, NY: Routledge.

Can, A. (2014). *SPSS ile bilimsel araştırma sürecinde nicel veri* analizi [Quantitative data analysis in the scientific research process with SPSS]. Ankara, Turkey: Pegem Akademi.

Coiro, J., & Dobler, E. (2007). Exploring the online reading comprehension strategies used by sixth- grade skilled readers to search for and locate information on the Internet. *Reading Research Quarterly, 42*(2), 214-257. https://doi.org/10.1598/RRQ.42.2.2

Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation*, *10*(1), Article 7. https://doi.org/10.7275/jyj1-4868

Çapık, C., Gözüm, S., & Aksayan, S. (2018). Kültürlerarası ölçek uyarlama aşamaları, dil ve kültür uyarlaması: Güncellenmiş rehber [Intercultural scale adaptation stages, language and culture adaptation: Updated guideline]. *Florence Nightingale Journal of Nursing, 26*(3), 199-210.

Çokluk, Ö., Şekercioğlu, G. & Büyüköztürk, Ş. (2014). *Sosyal bilimler için çok değişkenli istatistik SPSS ve LISREL uygulamaları* [Multivariate statistics for social sciences: SPSS and LISREL applications]. Ankara, Turkey: Pegem Akademi.

Çöğmen, S., & Saracaloğlu, A. S. (2010). Üst bilişsel okuma stratejileri ölçeği'nin Türkçeye uyarlama çalışmaları [Adaptation of metacognitive reading strategies questionnaire to Turkish]. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi* [Pamukkale University Journal of Education], 28(28), 91-99.

Denton, C. A., Wolters, C. A., York, M. J., Swanson, E., Kulesz, P. A., & Francis, D. J. (2015). Adolescents' use of reading comprehension strategies: Differences related to reading proficiency, grade level, and gender. *Learning and Individual Differences*, 37, 81-95. https://doi.org/10.1016/j.lindif.2014.11.016

Duke, N., Pearson, P.D., Strachan, S. & Billman, A. (2011). Essential elements of fostering and teachng reading comprehension. In S. J. Samuels & A. E. Farstrup (Eds.), *What research says to about reading instruction* (pp.286-314). Newark, DE: International Reading Association.

Evci, N., & Aylar, F. (2017). Derleme: Ölçek geliştirme çalışmalarında doğrulayıcı faktör analizinin kullanımı [Use of confirmatory factor analysis in scale development studies]. *Sosyal Bilimler Dergisi* [The Journal of Social Science], *4*(10), 389-412. https://doi.org/10.16990/SOBIDER.3386

Fielding, L. G. & Pearson P. D. (1994). Reading comprehension: What works?. *Educational Leadership, 51*(5), 62-68.

George, D., & Mallery, P. (2016). *IBM SPSS statistics 26 step by step: A simple guide and reference* (14th ed.). New York, NY: Routledge.

Gersten,R., Fuchs, L. S., Williams, J. P. & Baker, S. (2001). Teaching reading comprehension strategies to students with learning disabilities: A review of research. *Review of Educational Research ,71*(2), 279–320. https://doi.org/10.3102/00346543071002279

Gjersing, L., Caplehorn, J. R., & Clausen, T. (2010). Cross-cultural adaptation of research instruments: Language, setting, time and statistical considerations. *BMC Medical Research Methodology*, *10*(1), 1-10. https://doi.org/10.1186/1471-2288-10-13

Graesser, A. C. (2007). An introduction to strategic reading compherension. In D. S. McNamara (Ed.), *Reading compherension strategies: Theories, interventions and technologies* (pp. 1-26). New York, NY: Lawrence Erlbaum.

Graham, S., Schwartz, S. S. & MacArthur, C. A. (1993). Knowledge of writing and the composing process, attitude toward writing and writing self-efficacy for students with and without learning disabilities. *Journal of Learning Disabilities, 26* (4), 237-249. https://doi.org/10.1177/002221949302600404

Gravetter, F. J., & Forzano, L. B. (2012). *Research methods for the behavioral sciences* (4th ed.). Belmont, CA: Wadsworth

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Karatay, H. (2009). Okuma stratejileri bilişsel farkındalik ölçeği [A metecognitive awareness inventory of reading strategies]. *Bolu Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* [Bolu Abant İzzet Baysal University Journal of Graduate School of Social Sciences], *9*(2), 58-79. https://doi.org/10.11616/AbantSbe.242

Kline, R. B. (2011). *Principles and practise of structural equation modelling* (3rd ed.). New York, NY: The Guilford Press.

Kırmızı, F. S. (2008). Türkçe öğretiminde yaratıcı drama yönteminin tutum ve okuduğunu anlama stratejileri üzerindeki etkisi [The effect of the creative drama method on the attitude and reading strategies in Turkish

teaching]. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi* [Pamukkale University Journal of Education], 23(23), 95-109.

Kintsch, W. & Kintsch, E. (2005). Roles of motivation and engagement in reading comprehension assessment. In S. G. Paris & S. A. Stahl (Eds.), *Children's reading comprehension and assessment* (pp. 187-214), Mahwah, NJ: Lawrence Erlbaum.

Madhumathi, P. & Ghosh, A. (2012). Awareness of reading strategy use of Indian ESL students and the relationship with reading comprehension achievement. *English Language Teaching*, *5*(12), 131-140.

McKeown, M. G., Beck, I. L. & Blake, R. G. K. (2009). Rethinking reading comprehension instruction: A comparison of instruction for strategies and content approaches. *Reading Research Quarterly*, *44*(3), 218–253. https://doi.org/10.1598/RRQ.44.3.1

Ministry of National Education (2019). *Türkçe dersi öğretim programı* [Turkish course curriculum]. Ankara, Turkey: MEB Yayınları.

Mokhtari, K., & Reichard, C. A. (2002). Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology*, 94(2), 249-259. https://doi.org/10.1037/0022-0663.94.2.249

National Institute of Child Health and Human Development. (2000). Report of the National Reading Panel. Teaching children to read: An evidence- based assessment of the scientific research literature on reading and its implications for reading instruction (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.

Orçan, F. (2018). Exploratory and confirmatory factor analysis: which one to use first?. *Journal of Measurement and Evaluation in Education and Psychology*, *9*(4), 414-421. https://doi.org/10.21031/epod.394323

Öztürk, E. (2012). Okuma stratejileri üstbilişsel farkındalık envanteri'nin Türkçe formunun geçerlik ve güvenirlik çalışması [The validity and reliability of the Turkish version of the metacognitive awareness of reading strategies inventory]. *İlköğretim Online* [Elementary Education Online], 11(2), 292-305.

Özyılmaz, G., & Alcı, B. (2011). İlköğretim 7. sınıf öğrencilerine okuduğunu anlama stratejilerinin öğretiminin okuduğunu anlama başarısı üzerine etkisi [The effect of reading comprehension strategy instruction on reading comprehension achievement of 7th grade students]. Kuramsal Eğitimbilim Dergisi [Journal of Theoretical Educational Science], *4*(1), 71-94.

Pesa, N., & Somers, S. (2007). Improving reading comprehension through application and transfer of reading strategies (A Research Project). Chicago, Illinois: Saint Xavier University & Pearson Achievement Solutions. Retrieved from http://files.eric.ed.gov/fulltext/ED496540.pdf

Pierangelo, R. & Giuliani, G. (2008). *Teaching students with learning disabilities: A step-by-step guide for educators.* Thousand Oaks: Corwin Press.

Souvignier, E. & Mokhlesgerami, J. (2006). Using self-regulation as a framework for implementing strategy instruction to foster reading comprehension. *Learning and Instruction, 16*, 57-71. https://doi.org/10.1016/j.learninstruc.2005.12.006

Seçer, İ. (2015). *Psikolojik test geliştirme ve uyarlama süreci: SPSS ve LISREL uygulamaları* [Psychological test development and adaptation process: SPSS and LISREL applications]. Ankara, Turkey: Anı.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn and Bacon

Taraban, R. Kerr, M. & Rynearson, K. (2004). Analytic and pragmatic factors in college students' metacognitive reading strategies. *Reading Psychology, 25*(2), 67-81. https://doi.org/10.1080/02702710490435547

Taylor, S. (2018). Reading for Meaning: A guide to the research on best-practice teaching of comprehension in today's world. Retrieved March 11, 2023, from https://www.oup.com.au/__data/assets/pdf_file/0020/127622/PRIM_RFC_Whitepaper_Brochure_digital-V2.0.pdf

Weathington, B. L., Cunningham, C. J. L. & Pittenger, D. J. (2010). *Research methods for the behavioral and social sciences*. Hoboken: John Wiley & Sons.

Woolley, G. (2011). *Reading comprehension: Assisting children with learning difficulties*. *New York, NY: Springer.*

Zimmerman, B.J., Bonner, S., & Kovach, R. (1996). *Developing self-regulated learners: Beyond achievement to self-efficacy.* Washington, DC: American Psychological Association.

Appendix

Bağlamsallaştırılmış Okuma Stratejileri Ölçeği (Madde Havuzu)

A. Sosyal bilgiler öğretmeniniz sizden ödev olarak kitabınızdaki bir bölümü okumanızı istedi. Yarın, okuduğunuz bölümdeki önemli noktaları küçük gruplar şeklinde arkadaşlarınızla tartışacaksınız. Sonra, grubunuz sınıfın geri kalanına okuduğunuz bölüm hakkında bir sunum yapacak.

Böyle ödevlerde, öğrenciler okumaya başlamadan önce farklı şeyler yapabilirler. Okumaya başlamadan önce siz bunlardan hangisini ne kadar yapıyorsunuz?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
1	Okumaya başlamadan önce metne göz gezdirip, başlıklar ve resimlere bakarak metnin ne ile ilgili olacağını tahmin etmeye çalışırım.					
2	Boşa vakit kaybetmemek için hemen okumaya başlarım.					
3	Okumaya başlamadan önce metinde cevaplamak istediğim (cevabını arayacağım) soruları belirlerim.					
4	Okumaya başlamadan önce, bu metni neden okuyacağımı düşünürüm.					
5	(Okumaya başlamadan önce) Altını çizmeye, belirginleştirmeye ve not almaya hazır olduğumdan emin olurum.					

Öğrenciler okumaya başlamadan önce olduğu gibi okurken de farklı şeyler yapabilirler. Okurken, metindeki önemli noktaları bulmanıza, anlamanıza ve hatırlamanıza yardımcı olması için bunlardan hangilerini yapıyorsunuz?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
6	Metindeki önemli fikirleri kendi kelimelerimle söylemeye çalışırım.					
7	Okurken notlar alırım.					
8	Hatırlamama yardımcı olması için metnin bazı bölümlerini tekrar tekrar okurum.					
9	Yapabilirsem, metindeki önemli fikirleri belirginleştirir veya altını çizerim.					

10	Metni anlamama yardımcı olması için grafikler, çizimler ve haritalar kullanırım.					
11	Önemli bilgileri bulmak için kalın veya italik olarak yazılmış kelimeler veya cümleler ararım.					

B. Türkçe dersinde sizden ev ödevi olarak kitabınızdaki bir öyküyü okumanız istendi. Yarın öğretmeniniz okuduğunuz öykü hakkında bir test yapacak. Bir öyküyü okurken bilmediğiniz bir kelimeye rastladığınızda aşağıdakilerden hangisini ne kadar sıklıkta yapıyorsunuz?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
12	Bilmediğim kelimenin anlamını öğrenmek için sözlüğe ya da internete bakarım.					
13	Bilmediğim kelimeleri atlayıp okumaya devam ederim.					
14	Tekrar okuyarak ve cümledeki ipuçlarına bakarak kelimenin ne anlama geldiğini kavramaya çalışırım.					
15	Birinden yardım isterim.					
16	Kelimeyi yakından incelerim ve onu anladığım parçalara ayırırım.					

Daha iyi anlamak için bir hikâyeyi okurken veya okuduktan sonra aşağıdakilerken hangisini yapıyorsunuz?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
17	Okurken hikâyedeki bilgileri zihnimde canlandırmaya çalışırım.					
18	Hikâyede olanları kendi kelimelerimle anlatmak için hikâyenin farklı yerlerinde dururum.					
19	Okurken kendime hikâye ile ilgili sorular sorarım.					
20	Hikâyeyi niçin okuduğum hakkında düşünürüm.					
21	Okurken hikâyenin parçalarının nasıl birleştiğini (bir araya geldiğini) düşünürüm.					
22	Hikâyedeki karakterlerin neler yaptıklarını ve neden o şekilde davrandıklarını (davranışlarının					

	nedenlerini) düşünürüm					
23	Hikâyenin devamında neler olacağını tahmin ederim.					
24	Bu hikâyenin okuduğum diğer hikâyelerle nasıl örtüştüğünü (benzediğini) düşünürüm					
25	Okumayı bitirince, anladığımdan emin olmak için bütün hikâyeyi (hikâyeyi baştan sona) özetlerim.					

Hikâyenin anlaşılması çok zor olan bir bölümüne geldiğinizde bunlardan hangisini yaparsınız?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
26	Hikâye ilerledikçe daha iyi anlayabileceğimi umarak okumaya devam ederim.					
27	Okuduklarımı anlamama yardımcı olması için (daha iyi anlamak için) zor kısımları yüksek sesle okurum.					
28	Metnin anlaşılması zor ise, okuduklarıma daha çok dikkat gösteririm (daha dikkatli bir şekilde okurum).					
29	Okuduklarımı, anlamama yardımcı olacak bir arkadaşımla kontrol ederim.					
30	Metnin anlaşılması zor ise daha yavaş okurum.					
31	Anlaşılması zor bir bölüme gelirsem daha kolay görünen bir bölüme gelene kadar hızlıca okurum.					
32	Anladığımı hissedene kadar zor bölümü tekrar tekrar okurum.					

C. Sosyal bilgiler öğretmeniniz kütüphaneden seçtiğiniz bir kitabı okumanızı ve kitap hakkında kısa bir rapor (ödev/özet) yazmanızı istedi. Okuldaki derslerinizle ilgili (hikâye ya da roman olmayan) bilgilendirici türde herhangi bir kitabı seçebilirsiniz. Kitabı seçtikten sonra bilgilendirici türde olan bu kitabı okurken anlamanıza yardımcı olması için aşağıdakilerden hangisini yaparsınız?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
33	Okuduklarımı anlamama yardımcı olması için konu hakkında hâlihazırda neler bildiğimi düşünürüm.					
34	Kitaptaki fikirler (bilgiler) ile sınıfta öğrendiklerim arasında bağlantı kurmaya çalışırım					
35	Tamamen okuduğum metne konsantre olurum (yoğunlaşırım-dikkatimi veririm) ve başka şeyler düşünmem. (Başka şeyler düşünmeden tamamen okuduklarıma konsantre olurum).					
36	Kitaptaki fikirlerin nasıl birleştiğini/bağdaştığını anlamak için okurken metnin geride kalan veya ileriki bölümlerine bakarım.					
37	Okurken, metnin sonraki bölümünün ne hakkında olacağını tahmin ederim.					
38	Kitaptaki bilgilere (kitapta anlatılanlara) katılıp katılmadığım hakkında düşünürüm.					

Böyle bir okuma sırasında, öğrenciler metnin bir bölümünün kendilerine mantıklı gelmediğini fark edebilirler. Böyle bir durumda aşağıdakileri ne sıklıkla yaparsınız?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
39	Okuduklarımın mantıklı gelmediğini fark edersem geri dönüp o kısmı tekrar okurum.					
40	Metnin sonunda muhtemelen daha mantıklı hale geleceğini düşünerek okumaya devam ederim.					
41	Metinde düşündüğümden farklı şeyler olduğunda neyin yanlış olduğunu bulmaya çalışırım.					
42	Bir öğretmenimden ya da arkadaşımdan yardım isterim.					

D. Öğretmenlerinizden biri, sınıfta işlediğiniz konularla ilgili internetten iki makale okumanızı istedi. Makalelerden öğrendiklerinizi sınıfta kısaca anlatacaksınız.

Böyle bir durumda, metni okurken bunlardan hangisini ne sıklıkla yaparsınız?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
43	Okuduğum makalenin amacıma (okuma amacıma) uygun olup olmadığını düşünürüm.					
44	Okuduklarıma katılıp katılmadığıma karar vermek için okuduklarımı sorgularım.					
45	İki makaledeki bilgileri nasıl bir araya geldiğini düşünürüm.					
46	Okurken, metnin konu ile ilgili bilgilerime ve düşüncelerime katkı sağlayıp sağlamadığına karar veririm.					
47	Makalelerden edindiğim bilgileri nasıl kullanabileceğimi düşünürüm.					
48	Eğer makaleler iyi web sitelerinde yer alıyorsa, diğer şeyler hakkında fazla düşünmeden okurum.					
49	Makalelerde, sınıfın ilgisini çekecek bilgiler bulmaya çalışırım.					

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: August 10, 2023
Accepted: September 23, 2023
http://dergipark.org.tr/rep
e-ISSN: 2602-3733

September 2023 ◆ 7(2) ◆ 276-290
Research Article
https://doi.org/10.54535/rep.1340455

The Role of Psychological Resilience in Predicting Parenting Self-Efficacy Perceptions of Patients Applying to Breast Polyclinic

Büşra Ergin[1]
Selcuk University

Esra Ergin[2]
KTO Karatay University

Nergis Aksoy Sönmez[3]
University of Health Sciences

Mehmet Ali Eryılmaz[4]
University of Health Sciences

Abstract

The primary objective of this study is toinvestigate the relationship between psychological resilience levels and parenting self-efficacy perceptions of mothers with children aged 0-8 years who applied to the breast polyclinic. The study adopted a quantitative research design utilizing a relational screening approach, and it involved a cohort of 282 willing mothers, selected through a criterion sampling technique**.** "Personal Information Form", "Psychological Resilience Scale for Adults", "Revised Berkeley Parenting Self-efficacy Scale" were used as data collection tools. The investigation of interrelationships among variables was conducted through both correlation analysis and structural equation modeling. The study's outcomes reveal a discernible positive association between participants' psychological resilience and their perceptions of parenting self-efficacy. It was found that the highest relationship with the parental strategies dimension of parenting self-efficacy was with the social resources dimension of psychological resilience, and the highest relationship with the perception of future dimension of psychological resilience was with the child outcomes dimension of parenting self-efficacy. Path analysis outcomes substantiate that psychological resilience and its dimensions positively predict parenting self-efficacy. In alignment with these empirical findings, it was concluded that there is a positive relationship between psychological resilience and its dimensions and parenting self-efficacy.

Key Words

Mother • Parent • Psychological resilience • Self-efficacy

[1]Selcuk University, Faculty of Education, Department of Preschool Education, Konya, Türkiye. E-mail: busraergin.selcuk@gmail.com **ORCID:** 0000-0001-5177-7096
[2]**Correspondence to:** KTO Karatay University, School of Health Sciences, Department of Child Development, Konya, Türkiye. E-mail: esraergin.42@gmail.com **ORCID:** 0000-0002-3810-4142
[3]University of Health Sciences, Konya City Hospital, Department of General Surgery, Konya, Türkiye. E-mail: drnergisaksoy@hotmail.com **ORCID:** 0000-0002-0408-5190
[4]University of Health Sciences, Hamidiye Faculty of Medicine, Department of General Surgery, Konya, Türkiye. E-mail: mali_eryilmaz@hotmail.com **ORCID:** 0000-0002-5280-3943

Citation: Ergin, B., Ergin, E., Aksoy Sönmez, N., & Eryılmaz, M.A. (2023). The role of psychological resilience in predicting parenting self-efficacy perceptions of patients applying to breast polyclinic. *Research on Education and Psychology (REP), 7*(2), 276-290.

Introduction

Family refers to a complex whole that lasts for generations, interacts with each other and the members of which have different roles. The concept of parent is used to refer to the mother and father as a family subsystem (Santrock, 2014). Parenting is defined as the behavioral effort of the parent in the process of supporting the cognitive, social-emotional and physical development of the child. Effective parenting practices provided by parents to children in early childhood, which is the most critical period of childhood (0-8 years), directly affect children's development and self-formation (De Carli et al., 2018; Johnston & Halocha, 2010). Hence, it is evident that the parental self-efficacy perception plays a pivotal role in coping with different situations that may develop with their child. Parenting self-efficacy is defined as the extent to which parents fulfill the tasks related to child raising, their belief in managing parental situations and their ability to perform effectively in various situations (Gross et al., 1995).

Bandura (1997) stated that individuals' efficacy beliefs are among the basic qualities of effective parenting practices. Moreover, Teti and Gelfand (1991) have conducted research indicating that maternal self-efficacy beliefs have a mediating role between many psychosocial variables. Furthermore, they have also observed that self-efficacy exerts a mediating influence between depression, perceived social support, newborn temperament and maternal behaviors. Luebering (1995) observed a positive relationship between parenting self-efficacy perceptions and beliefs about infant care in first-time mothers. The study also revealed a relationship between maternal roles and parenting self-efficacy. The deduction drawn from the study underscores that mothers who were happy with their maternal experience felt more competent. Therefore, perceived parenting self-efficacy is an element that provides insight for parents to exhibit appropriate parenting skills and behaviors for their children (Coleman & Karraker, 2000).

In conjunction with the assessment of self-efficacy perception, parents' own psychological resilience levels are also considered as a significant contributory factor in effectively managing the challenges and stressors that mayemerge within the parental role. Psychological resilience is defined as the ability of individuals to adapt to and cope with negative situations (Alvord & Grados, 2005). In the context of parental dynamics, psychological resilience is the ability to overcome negative situations successfully and the high self-repair capacity of family members (Becvar, 2013). Studies indicate that as parenting self-efficacy increases, negative psychological symptoms in families decrease (Kobasa et al., 1982). Kobasa, Maddi and Khan (1982) found that psychological resilience is effective in individuals' ability to cope with stress and good health, and that individuals with high psychological resilience have a positive perspective towards themselves and the environment. When an evaluation is made in the light of relevant information, it becomes imperative to delineate the impact of psychological resilience levels, which are closely related to the general health status, of mothers with children in early childhood who apply to breast polyclinic due to different disorders, on parenting self-efficacy perceptions. When the thorough review of the pertinent scholarly literature is examined, it reveals that the relationship between psychological resilience and self-efficacy of parents whose children have been diagnosed with cerebral palsy and autism spectrum disorder has been examined (Çiğdem, 2022; Rezendes & Scarpa, 2011; Uçar, 2021). In addition, other elements with which these concepts are frequently associated are parental attitudes (Kurt & Aslan, 2020), self-understanding (Arıcı & Artan, 2022), social support, and parent-child relationship (Çakır & Kızıler, 2022). The studycohorts in the aforementioned

investigations encompass parents and children diagnosed with different types of diseases and exposed to processes involving various problems. In essence, the construct of psychological resilience, commonly linked with navigating adversarial circumstances, affects all life areas of individuals to a certain extent. In this sense, the study was planned based on the idea that all mothers with different characteristics, with and without chronic conditions, have the same anxieties and fears when applying to the breast polyclinic. Therefore, it is valuable to examine psychological resilience, which is thought to be a predictor of parenting self-efficacy perception, in these patients. In this context, the aim of the study is to examine the relationship between psychological resilience levels and parenting self-efficacy perceptions of mothers with children aged 0-8 years who applied to the breast polyclinic.

Method

Participants

The collection for this research, employing a quantitative design and a relational screening methodwas conducted within the timeframe spanning from September 2022 to October 2022. The inclusion criteria established for the participants were that they had applied to the breast polyclinic and had children aged 0-8. In alignment with these criteria, the study was conducted with 282 mothers who voluntarily accepted the application.Consents of the participants were obtained through an informed consent form. When the information obtained from the personal information form of the participants was analyzed, it was determined that 25.2% of the participants were 35 years old or younger, 22.7% were 36-40 years old, 22.7% were 41-45 years old and 29.4% were 46 years old or older. It was determined that 38.7% of the participants were primary school graduates, 19.5% were secondary school graduates, 26.6% were high school graduates, 15.2% were undergraduate graduates, 85.8% were not working and 14.2% were working. Of the participants, 44.3% had a family income of 0-7 thousand TL, 41.8% had a family income of 7-14 thousand TL and 13.8% had a family income of 14 thousand TL or more, 18.8% had been married for 6-10 years, 16. 7% had been married for 11-15 years, 17% had been married for 16-20 years, 47.5% had been married for 20 years or more, 7.1% had one child, 36.2% had two children, 39.7% had three children and 17% had four or more children. It was determined that 44% of the participants had a diagnosed condition, while 56% did not have any diagnosed condition.

Data Collection Tools

Psychological Resilience Scale for Adults, originally devised by Friborg et al. (2005), serves as a tool for assessing the psychological resilience levels exhibited by individuals. The adaptation of the Psychological Resilience Scale for Adults into the Turkish language was undertaken by Basım and Çetin in 2011. It is a 5-point Likert type scale and has 33 items. The scale has 6 dimensions: self-perception, future perception, structural style, social competence, family cohesion and social resources. Sample statements are "When something unexpected happens...I always find a solution...Most of the time I don't know what to do..." and "In difficult times...I have a tendency... who sees everything as hopeless…finding something good that can lead me to success...". The internal consistency coefficients for the dimensions of the original form are as follows: self-perception is .80, future perception is .75, structural style is .76, social competence is .82, family cohesion is .86 and social resources is .84 (Friborg et al., 2005). In the Turkish version, the internal consistency coefficient for the whole scale is .86, while the internal

consistency coefficient for the dimensions is between .66-.81. The test-retest reliability coefficient ranges between .68-.81 for the dimensions (Basım & Çetin, 2011).

The Revised Berkeley Parent Self-Efficacy Scale (BPSE-R), initially developed by Holloway et alin 2019 to determine parenting self-efficacy, was subsequently adapted into Turkish by Güler Yıldız et al. in 2021. This instrument is configured as a 6-point Likert-type scale and comprises a total of 18 items. The scale has 2 dimensions: parental strategies and child outcomes. Sample statements are "Avoiding overreaction when my child misbehaves" and "Expressing thoughts clearly". In the Turkish version, the internal consistency coefficient for the whole scale was .91, while the reliability coefficient for the sub-dimensions was .83 for the parental strategies sub-dimension and .88 for the child outcomes sub-dimension. The test-retest reliability coefficient was .67 for the whole scale (Güler Yıldız et al., 2021).

Process

The commencement of this study adhered to a meticulously orchestrated procedural sequence. Firstly, formal permissions were sought and granted for the utilization of the assessment scales instrumental to the research. Subsequently, the research protocol was subjected to the scrutiny and endorsement of the KTO Karatay University Faculty of Medicine Non-Pharmaceutical and Medical Device Studies Ethics Committee, which culminated in the issuance of the requisite ethical clearance. The data collection tools were administered to the participants consecutively in different orders to eliminate the order effect. In addition to the data collection tools, a personal information form and a consent form were also given. In the study, which was conducted in accordance with the principle of volunteerism, the scales were applied to the participants face-to-face and each application was completed in approximately 15 minutes.

Statistical Analysis

SPSS 25 and LISREL 8.7 programs were used to analyze the data. In the evaluation of the study data, frequency and percentage values were calculated to describe the demographic information of the participants. In the initial phase of this two-part study, a rigorous assessment of the data collection tools' validity and reliability was undertaken. To ascertain the appropriateness of this analytical process for the study's sample, a series of preliminary assessments were conducted. These assessments encompassed an evaluation of the normal distribution of the data, the identification of potential outliers, the detection of multicollinearity issues, and an examination of the homogeneity of variances. The findings of the preliminary analyses indicated that the dataset in question exhibited a favorable profile for subsequent statistical analysis. In this context, exploratory and confirmatory factor analyses were conducted to test the construct validity of both measurement tools. In addition, convergent validity and divergent validity were calculated. In the second step, correlation analysis and structural equation modeling were used to examine the connection between the variables. In the analyses of the study, .05 and .01 were set as significance level.

Results

Study-1

Within this section, a rigorous examination of the validity and reliability metrics for both the psychological resilience and parenting self-efficacy scales was conducted with regard to the study's designated sample.

Validity and Reliability Analysis Results of the Psychological Resilience Scale for Adults

Based on the outcomes of the exploratory factor analysis conducted on the dataset acquired from a cohort of 282 mothers, it was ascertained that the scale comprised a total of six discernible factors. While the common variance explained by the whole scale was 80.95, the variance values explained by the factors were 13.37% for self-perception, 9.75% for future perception, 10.73% for structural style, 15.11% for social competence, 15.42% for family cohesion and 16.55% for social resources. When the internal consistency coefficients were analyzed, the Cronbach-α value for the whole scale was .97, and the values for the factors were as follows: self-perception was .92, future perception was .94, structural style was .92, social competence was .95, family cohesion was .93 and social resources was .98. Confirmatory factor analysis was conducted to test the factor structure. The factor loadings of the structure confirmed by the CFA findings ranged between .74-.96. The fit index values of the model confirming the factor structure were (x2/df=2.80, GFI=.93, AGFI=.91, NFI=.98, CFI =.98, SRMR=.04 and RMSEA=.08). In addition, the convergent validity of the scale was evaluated for self-perception (CR=.92 AVE=.66), future perception (CR=.94 AVE=.81), structural style (CR=.92 AVE=.73), social competence (CR=.94 AVE=.74), family cohesion (CR=.94 AVE=.71) and social resources (CR=.98 AVE=.87). Fornell Larcker Criterion was evaluated for discriminant validity. The deduced conclusion emanating from the analysis indicated that the square root of the mean variance value for each dimension surpassed the corresponding correlations associated with said dimension.

Validity and Reliability Analysis Results of the Revised Berkeley Parenting self-efficacy Scale (BPSE-R)

According to the outcomes derived from the exploratory factor analysis conducted on the dataset comprising responses from 282 mothers, the scale was found to be comprised of two distinct factors. While the common variance explained by the whole scale was 61.49%, the variance values explained by the factors were 25.71% for parental strategies and 35.77% for child outcomes, respectively. An examination of the internal consistency coefficients revealed that the Cronbach's α coefficient for the comprehensive scale attained a value of .94. Moreover, the Cronbach's α coefficients for the constituent factors were computed as .86 for parental strategies and .93 for child outcomes. Subsequently, a confirmatory factor analysis was conducted to test the factor structure. The factor loadings of the structure confirmed by the CFA findings ranged between .63-.85. The fit index values of the model confirming the factor structure were (x2/df=3.82, GFI=.92, AGFI=.90, NFI=.98, CFI=.98, SRMR=.04 and RMSEA=.07). In addition, the convergent validity of the scale, parental strategies (CR=.87 AVE=.50) and child outcomes (CR=.94 AVE=.59) were evaluated. Fornell Larcker Criterion was evaluated for discriminant validity. The derived inference from the analysis indicated that the square root of the mean variance value for each dimension exhibited a magnitude surpassing the respective correlations linked to that particular dimension.

Study-2

Within this section, the primary hypothesis of the study, along with the subsidiary hypotheses formulated in accordance with the main hypothesis, underwent rigorous testing and evaluation.

Correlation Analysis Results for Data Collection Tools and Dimensions

A significant positive relationship was found between the psychological resilience of the participants (n=282) and their perceptions of parenting self-efficacy (r=.576; p<.01). It was determined that the highest correlation between parental strategies and psychological resilience dimensions was with social resources with a correlation coefficient of .485, and the highest correlation with the dimension of child outcomes was with future perception with a coefficient of .480 (Table 1).

Table 1

Correlation analysis results between variables

Variables	Self-perception	Future perception	Structural style	Social competence	Family cohesion	Social resources	Psychological resilience
Parental strategies	.428**	.461**	.424**	.461**	.453**	.485**	.547**
Child outcomes	.418**	.480**	.381**	.437**	.388**	.474**	.520**
Parenting self-efficacy	.457**	.511**	.432**	.484**	.449**	.519**	.576**

**p<0.01

Path Analysis Results of the Models Created for the Hypotheses

The model, as depicted in Figure 1, was conceptualized to serve as the central framework for the principal objective of this research. Below, the pertinent data integral to the testing and validation of this model are presented.

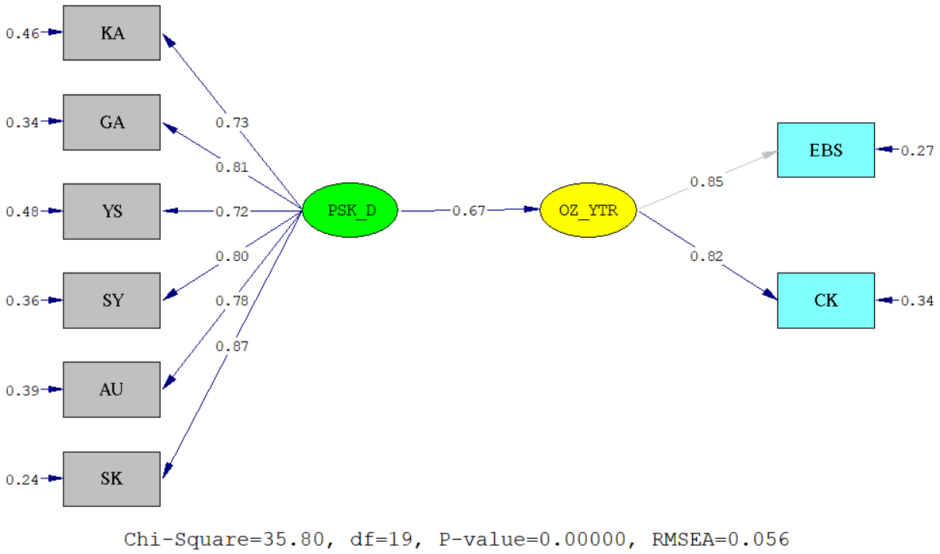


Figure 1. Path diagram for analyzing the main purpose of the study

The model elucidates the influence of psychological resilience on parenting self-efficacy. The evaluation of the model's fit, as indicated by the fit criteria, reveals an excellent fit: $\chi 2/df=1.88$, RMSEA=.056, CFI=.99, RMR=.023, SRMR=.021, GFI=.97, AGFI=.94, NFI=.99, and NNFI=.99 (Figure 1).

Table 2

Standardized parameter estimates and t values for the model

Hypotheses	Paths	Standardized parameter estimates (β)	*t* values	Result
H_1: Mothers' psychological resilience levels have a significant effect on their perceptions of parenting self-efficacy.	Psyc_res ➔ Self_efficacy	0.67	10.09**	Accepted

**p<.01

When Table 2 is examined, it becomes evident that the main hypothesis developed within the scope of the study is accepted. It was concluded that the whole psychological resilience scale (β=.67, t=10.09>2.58; p<.01) positively affected parenting self-efficacy. The model (Figure 2) related to the hypotheses formed depending on the main purpose of the study and the data related to its testing are given below.

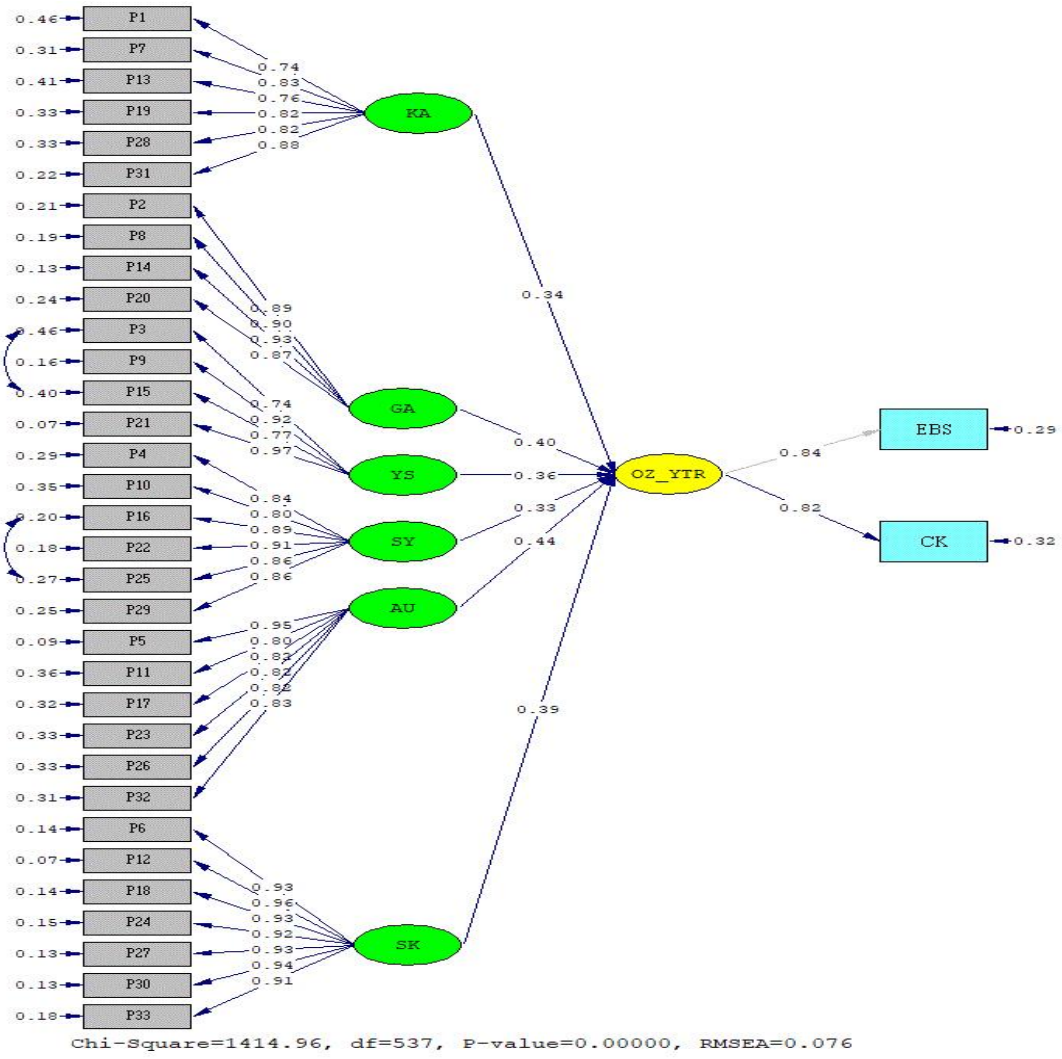


Figure 2. Path diagram for analyzing the main purpose of the study

The model elucidates the impacts of the various dimensions of psychological resilience on parenting self-efficacy. Upon rigorous assessment of the model's fit using established criteria, it was established that the model exhibited a notably strong fit: $\chi 2/df = 2.63$, RMSEA = .076, CFI = .98, RMR = .043, SRMR = .040, GFI = .94, AGFI = .92, NFI = .98, and NNFI = .98 (Figure 2).

Table 3

Standardized parameter estimates and t values for the model

Hypotheses	Paths	Standardized Parameter Estimates (β)	*t* values	Result
H_{1a}: Mothers' level of self-perception has a significant effect on their perceptions of parenting self-efficacy.	Self-perception ➔ self_efficacy	0.34	5.22**	Accepted
H_{1b}: Mothers' level of future perception has a significant effect on their perceptions of parenting self-efficacy.	Future perception ➔ self_efficacy	0.40	3.61**	Accepted
H_{1c}: Mothers' structural style levels have a significant effect on their perceptions of parenting self-efficacy.	Structural style ➔ self_efficacy	0.36	2.76**	Accepted
H_{1d}: Mothers' structural style levels have a significant effect on their perceptions of parenting self-efficacy.	Social competence ➔ self_efficacy	0.33	2.81**	Accepted
H_{1e}: Mothers' family cohesion levels have a significant effect on their perceptions of parenting self-efficacy.	Famıly cohesion ➔ self_efficacy	0.44	4.09**	Accepted
H_{1f}: Mothers' level of social resources has a significant effect on their perceptions of parenting self-efficacy.	Social resources ➔ self_efficacy	0.39	2.72**	Accepted

**p<.01

When Table 3 is examined, it becomes clear that the hypotheses developed within the scope of the study depending on the main hypothesis are accepted. To elaborate further, it is discerned that the dimensions of the psychological resilience scale, self-perception (β=.34, t=5.22>2.58; p<.01), future perception (β=.40, t=3.61>2.58; p<.01), structural style (β=.36, t=2.76>2.58; p<.01), social competence (β=. 33, t=2.81>2.58; p<.01), family cohesion (β=.44, t=4.09>2.58; p<.01) and social resources (β=.39, t=2.72>2.58; p<.01), collectively exhibited a positive and statistically significant impact on parenting self-efficacy.

Discussion

This study was designed to describe the relationship between psychological resilience and parenting self-efficacy perception and the effects of predictor variables. When the results of the correlation analysis were analyzed, it was determined that the psychological resilience scale and its dimensions had a significant positive relationship with parenting self-efficacy perception. In this sense, it was indicated that the dimensions with the highest relationship with parenting self-efficacy perception were social resources and future perception.Furthermore, an additional observation elucidated that the dimension of psychological resilience denoted as "social resources" exhibited the most robust association with "parental strategies," a constituent dimension of parenting self-efficacy perception. It was also found that future perception, a dimension of psychological resilience, had a high relationship with child outcomes, a dimension of parenting self-efficacy perception. Path analyses conducted in the context of these relationships reveal that psychological resilience and its dimensions positively predict parenting self-efficacy.

When the related literature is examined, it is seen that the studies addressing psychological resilience with the family dimension are frequently conducted with individuals who have psychiatric disorders (Sari & Duman, 2022), multiple sclerosis (McKenna et al., 2022a), cancer (Ağaç & Üzar Özçetin, 2022), hemodialysis (Qiu et al., 2021), chronic neurological disorders (McKenna et al., 2022b), alcoholism (Haverfield & Theiss, 2016), autism spectrum disorder (Çiğdem, 2022) and primary caregivers of these individuals. The concept of parenting self-efficacyhas predominantly been investigated within the context of mothers, who are generally seen as the primary caregivers of children. It becomes clear that the concept of psychological resilience is one of the topics frequently examined in studies conducted with nurses and nursing students, high school and university students, soldiers, heart and diabetes patients. Psychological resilience is considered as a frequently used element in evaluating the outcomes of challenging processes in individuals. Therefore, it is generally examined to what extent it affects positive qualities of individuals such as well-being, life satisfaction, understanding and compassion.

When the studies that are similar in terms of the scope and participants of the study were analyzed, it was posited that Kurt and Aslan (2020) examined the differentiation and relationship of dependent variables such as self-efficacy, psychological resilience and parental attitudes of mothers with preschool children (2-6 years old) according to the basic qualities of the individual. Supporting the results of our study, their study also showed that there was a relationship between psychological resilience and maternal self-efficacy. In addition, it was observed that maternal self-efficacy and parental attitudes differed significantly according to education and income level, and psychological resilience differed significantly according to education and income level and number of children (Kurt & Aslan, 2020). In another study, Çiğdem (2022) applied a psycho-education program to parents with children diagnosed with autism spectrum disorder and examined the effect of the program on parents' psychological resilience and parenting self-efficacy perception. The findings derived from this study offer compelling evidence to suggest that the implemented education program has yielded a positive impact on both psychological resilience and parenting self-efficacy. The results prove that mothers of children with special needs need support in coping with difficulties in life and developing basic competencies. When the results are evaluated in this respect, it is thought that the participants of our study also need psychological help due to their chronic illnesses. However, all events that catch us unprepared and disrupt our routine cause us to give emotional reactions such as sadness, anxiety and fear. Over time, these events become a stress factor in the mind of the individual, threatening his/her life. These processes, characterized by their enduring and far-reaching ramifications, engender discernible distinctions in the behavioral patterns exhibited by individuals. Considering that the participants of the study included individuals diagnosed with cancer, the necessity of a psycho-education program as in Çiğdem's (2022) study comes to the fore. Uçar (2021) comparatively evaluated the psychological resilience and parenting self-efficacy of parents with typically developing children and parents with children diagnosed with cerebral palsy. In his inquiry, Uçar (2021) observed that there existed no discernible disparity concerning parenting self-efficacy between the two groups under scrutiny. However, he arrived at a noteworthy determination with regard to psychological resilience, wherein he ascertained a substantial distinction. Specifically, Uçar reported that parents tasked with the care of children diagnosed with cerebral palsy exhibited lower levels of psychological resilience in comparison to their counterparts.

Another study similar to the findings of our research is Durak (2021), in which the mediating role of general self-efficacy in the relationship between psychological resilience and life satisfaction was examined. The outcomes of this investigation underscore a significant and positive association between students' psychological resilience and their general self-efficacy scores. Furthermore, the findings elucidate that psychological resilience exerts a constructive influence on general self-efficacy among the student population. As a matter of fact, Toplu (2017), in his study with high school students, states that there is a significant positive relationship between students' psychological resilience scores and self-efficacy scores. The study of Bullough et al. (2014) similarly supports the research findings. In another study on the subject, Kılıç et al. (2020) stated that general self-efficacy belief was a significant predictor of psychological resilience.

A holistic analysis of the study's findings reveals that the high psychological resilience exhibited by the participants in this research is indicative of a concomitant elevation in their parental self-efficacy. Consequently, it can be inferred that parents endowed with high levels of psychological resilience demonstrate a tenacity in retaining their faith in their parenting aptitude, even when confronted with adverse conditions that have the potential to exert a negative impact. It can be also stated that the social resources and social support that parents can access contribute both to their own development and indirectly to the development of their children. In addition, it is observed that parents' short and long-term goals about their lives contribute positively to their actions. In this manner, these individuals manifest more motivational behaviours in terms of what they can bring to themselves and their children.

Conclusion

When the results of our study are evaluated in the context of the relevant literature, similar findings are observed. It is known that the concept of psychological resilience, which is closely related to factors such as family ties, perceived social support, beliefs, culture and living conditions, is one of the most important psychosocial indicators in the prognosis of the disorders of the individual. Additionally, it constitutes a significant contributory element in the adaptive processes associated with managing various disorders. Furthermore, it plays a pivotal role in facilitating the regulation of individuals' emotional responses throughout the course of medical treatment, thereby enhancing their overall adaptation. In essence, it empowers individuals to comprehend the fluctuations resulting from their illness, mitigate potential risks, and demonstrate behaviors congruent with the prescribed treatment regimen. As emphasized in related studies, individuals with high psychological resilience are more motivated to overcome problems and show symptoms such as anxiety and fear less. Hence, there exists a supposition that the probability of receiving a diagnosis for a medical condition, an occurrence known to intensify individuals' stress levels, exerts an influence on their psychological resilience. The concept of psychological resilience also affects maternal skills, which are among the most important roles of women. Therefore, the context and results of the study are valuable both as a product of an interdisciplinary study and in terms of revealing the qualities of the sample in which the application was carried out.

Author contributions

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by [Büşra ERGİN], [Esra ERGİN], [Nergis AKSOY SÖNMEZ], and [Mehmet Ali ERYILMAZ]. All authors read and approved the final manuscript.

Ethics approval

The study was approved by the KTO Karatay University Faculty of Medicine Non-Pharmaceutical and Medical Device Studies Ethics Committee (Project number: 2022/032). Informed consent was obtained from the participants before the study.

Conflict of interest

The authors declare that there are no conflicts of interest.

Funding

No funding was received for this study.

Note

This article was presented as an oral presentation at the 7th International New York Conference On Evolving Trends In Interdisciplinary Research & Practices, held October 1-3, 2022 in Manhattan, New York City.

References

Ağaç, M., & Üzar-Özçetin, Y.S. (2022). Psychological resilience, metacognitions, and fear of recurrence among cancer survivors and family caregivers. *Cancer Nursing*, *45*(2), E454-E462. https://doi.org/10.1097/NCC.0000000000000973

Alvord, M., & Grados, J. (2005). Enhancing resilience in children: A proactive approach. *Professional Psychology: Research and Practice*, 36, 238-245. https://doi.org/10.1037/0735-7028.36.3.238

Arıcı, A., & Artan, T. (2022). Psikolojik sağlamlığın gelişiminde aracı bir değişken olarak öz anlayış [Self-compassion as a mediating variable on the development of resilience]. *Sosyal Çalışma Dergisi [Turkish Journal of Social Work]*, *6*(2), 131-142. https://dergipark.org.tr/tr/pub/scd/issue/74490/1173082

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.

Basım, H.N., & Çetin, F. (2011). Reliability and validity studies of Resilience Scale for Adults. *Türk Psikiyatri Dergisi [Turkish Journal of Psychiatry]*, *22*(2), 104-114.

Becvar, D.S. (2013). *Family resilience relative to mental health challenges, Becvar* (ed.), Handbook of Family Resilience. New York: Springer Science Business Media. https://doi.org/10.1007/978-1-4614-3917-2_24

Bullough, A., Renko, M., & Myatt, T. (2014). Danger zone entrepreneurs: The importance of resilience and self-efficacy for entrepreneurial intentions. *Entrepreneurship Theory and Practice*, *38*(3), 473–499. https://doi.org/10.1111/etap.12006

Coleman, P.K., & Karraker, K.H. (2000). Parenting self-efficacy among mother of school-age children: Conceptualization, measurement, and correlates. *Family Relations*, 49, 13-24. https://doi.org/10.1111/j.1741-3729.2000.00013.x

Çakır, M.N., & Kızıler, E. (2022). Kronik hastalığa sahip çocuğu olan ailelerde ebeveyn-çocuk ilişkisi: Sosyal destek ve ebeveyn öz yeterliği [Parent-child relationship in families with chronic diseased children: Social support and parental self-efficacy]. *Türkiye Sağlık Bilimleri ve Araştırmaları Dergisi [Turkish Journal of Health Sciences and Research]*, *5*(3), 48-58. https://doi.org/10.51536/tusbad.1128746

Çiğdem, C.S. (2022). *Otizm spektrum bozukluğu olan çocukların ebeveynlerine uygulanan güçlendirme psikoeğitiminin psikolojik dayanıklılık ve ebeveyn öz-yeterliğine etkisi [The effect of empowerment psychoeducation applied to parents of children with autism spectrum disorder on resilience and parental self-efficacy]*. [Unpublished Master's Thesis]. Ege University.

De Carli, P., Tagini, A., Sarracino, D., Santona, A., Bonalda, V., Cesari, P.E., et al. (2018). Like grandparents, like parents: Empirical evidence and psychoanalytic thinking on the transmission of parenting styles. *Bull Menninger Clin*, *82*(1), 46-70. https://doi.org/10.1521/bumc_2017_81_11

Durak, İ. (2021). Psikolojik sağlamlık ile yaşam doyumu arasındaki ilişkide öz yeterliğin aracı etkisi [Mediator effect of self-efficacy in the relationship between psychological resilience and life satisfaction]. *Elektronik Sosyal Bilimler Dergisi [Electronic Journal of Social Sciences]*, *20* (78), 1175-1190. https://doi.org/10.17755/esosder.816639

Friborg, O., Barlaug, D., Martinussen, M., Rosenvinge, J.H., & Hjemdal, O. (2005). Resilience in relation to personality and ıntelligence. *Int J Methods Psychiatr Res, 14*(1), 29-42. https://doi.org/10.1002/mpr.15

Gross, D., Fogg, L., & Tucker, S. (1995). The efficacy of parent training for promoting positive parent-toddler relationships. *Res Nurs Health, 18*(6), 489-99. https://doi.org/10.1002/nur.4770180605

Güler Yıldız, T.G., Şahin, F., Haktanır, G., & Holloway, S. (2021). Turkish adaptation of the Berkeley Parenting Self-Efficacy Scale-Revised (BPSE-R). *Journal of Education and Future*, (19), 13-23. https://doi.org/10.30786/jef.778666

Haverfield, M.C., & Theiss, J.A. (2016). Parent's alcoholism severity and family topic avoidance about alcohol as predictors of perceived stigma among adult children of alcoholics: Implicationsfor emotional and psychological resilience. *Health Communication, 31*(5), 606-616. https://doi.org/10.1080/10410236.2014.981665

Holloway, S.D., Suzuki, S., Kim, S., Nagase, A., Wang, Q., Campbell, E.J., Golshirazi, M., Iwatate, K., & Nishizaka, S. (2019). Development and cross-national validation of a revised version of the Berkeley Parenting Self-efficacy Scale. *Early Childhood Research Quarterly*, 47, 309-320. https://doi.org/10.1016/j.ecresq.2018.12.016

Johnston, J., & Halocha, J. (2010). *Early childhood and primary education: Readings and reflections* (1st ed.). UK: McGraw-Hill Education.

Kılıç, N., Mammadov, M., Koçhan, K., & Aypay, A. (2020). The predictive power of general self-efficacy beliefs and body images of university students on resilience. *Hacettepe University Journal of Education, 35*(4), 904-914. https://doi.org/10.16986/HUJE.2018044245

Kobasa, S.C., Maddi, S.R., & Kahn, S. (1982). Hardiness and health: A prospective study. *Journal of Personality and Social Psychology*, *42*(1), 168-177. https://doi.org/10.1037/0022-3514.42.1.168

Kurt, H., & Aslan, D. (2020). Okul öncesi dönem çocuğu olan annelerin öz-yeterlik, psikolojik sağlamlık ve ebeveyn tutumlarının incelenmesi [Investigation of self-efficacy, psychological resilience and parental attitudes of preschool children]. *KADEM Kadın Araştırmaları Dergisi [KADEM Journal of Women's Studies]*, *6*(2), 211-240. https://doi.org/10.21798/kadem.2021266729

Luebering, A. (1995). The relationship between perceived parental self-efficacy and childrearing beliefs among first-time mothers of infant. Paper presented at the biennial meeting of the society for research in child development. *Indianapolis*, In, March 30-April 2.

McKenna, O., Fakolade, A., Cardwell, K., & Pilutti, L.A. (2022a). A continuum of languishing to flourishing: Exploring experiences of psychological resilience in multiple sclerosis family caregivers. *Int J Qual Stud Health Well-being, 17*(1), 2135480. https://doi.org/10.1080/17482631.2022.2135480

McKenna, O., Fakolade, A., Cardwell, K., Langlois, N., Jiang, K., & Pilutti, L.A. (2022b). Towards conceptual convergence: A systematic review of psychological resilience in family caregivers of persons living with chronic neurological conditions. *Health Expectations, 25*(1), 4-37. https://doi.org/10.1111/hex.13374

Qiu, Y., Huang, Y., Wang, Y., Ren, L., Jiang, H., Zhang, L., & Dong, C. (2021). The role of socioeconomic status, family resilience, and social support in predicting psychological resilience among Chinese maintenance hemodialysis patients. *Frontiers in Psychiatry*, 12, 723344. https://doi.org/10.3389/fpsyt.2021.723344

Rezendes, D.L., & Scarpa, A. (2011). Associations between parental anxiety/depression and child behavior problems related to autism spectrum disorders: The roles of parenting stress and parenting self-efficacy. *Hindawi Publishing Corporation Autism Research and Treatment*. https://doi.org/10.1155/2011/395190

Santrock, J.W. (2014). *Life-span development.* McGraw-Hill Education.

Sari, A., & Duman, Z.Ç. (2022). Effects of the family support and psychoeducation program based on the Calgary Family Intervention Model on the coping, psychological distress and psychological resilience levels of the family caregivers of chronic psychiatric patients. *Archives of Psychiatric Nursing*, 41, 1-10. https://doi.org/10.1016/j.apnu.2022.07.014

Teti, M., & Gelfand, D.M. (1991). Behavioral competence among mothers of infants in the first year: The meditational role of maternal self-efficacy. *Child Development*, 62, 918-929. https://doi.org/10.1111/j.1467-8624.1991

Toplu, A. (2017). *Şiddete maruz kalan ergen öğrencilerin psikolojik sağlamlıkları ile empati ve öz yeterlikleri arasındaki ilişkinin demografik değişkenlerle birlikte incelenmesi: Kahramanmaraş ili örneği [The investigation with demographic variables of the relationship between psychological resilience, empathy and self-efficacy of adolescent students exposed to violence (The sample city of Kahramanmaras)]*. [Unpublished Master's Thesis]. Çağ University.

Uçar, M. (2021). *Serebral palsi tanısı almış çocuğa sahip annelerin ve tipik gelişim gösteren çocuğa sahip annelerin psikolojik dayanıklılık ve ebeveyn yeterlilik düzeylerinin karşılaştırılması [Comparison of resilience and parental competence levels of mothers with children diagnosed with cerebral palsy and mothers with typically developing children]*. [Unpublished Master's Thesis]. İstanbul Gelişim University.

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: August 12, 2023
Accepted: September 24, 2023
http://dergipark.org.tr/rep
Research Article

e-ISSN: 2602-3733

September 2023 ◆ 7(2) ◆ 291-306
https://doi.org/10.54535/rep.1342022

Academic Self-Efficacy, Study Skills and Academic Achievement: A Serial Mediation Model

İbrahim Dadandı[1]

Yozgat Bozok University

Abstract

Educational achievement is crucial determinant of one's future career opportunities and plays a critical role in the psycho-social development. Identifying the factors that influence academic achievement is essential for developing effective interventions and strategies to enhance students' learning outcomes. This study aims to investigate the serial mediation role of study skills (systematic and organized study, and effective homework and exam preparation) in the relationship between academic self-efficacy and academic achievement. A group of 392 secondary school students completed the Academic Self-Efficacy Scale as well as two sub-scales from the Study Skills Scale: systematic and organized study, and effective homework completion and exam preparation. The findings of the study revealed positive correlations among all variables. Furthermore, the serial mediation analysis demonstrated that the skills of systematic and organized study, and effective homework and exam preparation serially mediated the relationship between academic self-efficacy and academic achievement. These results suggest that interventions, implementations, and policies that aim to strengthen students' perception of academic self-efficacy and improve their study skills can contribute to the academic achievement and other student outcomes.

Key Words

Academic self-efficacy • Study skills • Academic achievement

[1] **Correspondence to:** Yozgat Bozok University, Faculty of Education, Yozgat, Türkiye. E-mail: ibrahim.dadandi@bozok.edu.tr **ORCID:** 0000-0003-1503-0272

Citation: Dadandı, İ. (2023). Academic self-efficacy, study skills and academic achievement: A serial mediation model. *Research on Education and Psychology (REP), 7*(2), 291-306.

Introduction

Today, teachers, policy-makers, parents and even students themselves are aware of the fact that academic achievement means more than being successful at exams and getting high grades at school. Selective high-schools and universities not only in Türkiye but also in many other countries accept students according to their diploma grade and/or the national exam results (Gölpek & Uğurlugelen, 2013). Because of this reason, in today's competitive societies, academic achievement is considered to be one of the most crucial determinants of one's school success, which in turn affects their level of welfare (Spinath, 2012). The significance placed on academic achievement can impact students' psychosocial development and mental health by leading them to place a high value on their personal performance and base their self-worth on their school success, especially during adolescence. Previous research findings indicate that a high level of academic achievement is related to indicators of mental health such as a more positive self-concept (Möller et al., 2020) and better psychological well-being (Bücker et al., 2018). Conversely, a low level of academic achievement is related to inharmonious emotional and behavioral reactions such as depression (Huang, 2015), school dropout and drug abuse (Crum et al., 1998). Moreover, failure at school can have a lifelong negative influence (Kern & Friedman, 2009). Therefore, identifying the cognitive, psychological, educational and environmental antecedents of academic achievement is a prior goal of educational psychology (e.g., Hattie, 2009; Pérez et al., 2012; Veas et al., 2015). In recent years, researchers have been focusing on psychological factors that are potentially prone to being shaped by educational practices such as academic self-efficacy (for a review, see Hattie, 2009).

Self-efficacy is rooted in Social Cognitive Learning Theory and is defined as an individuals' belief in their capacity to meet the requirements necessary for achieving a specific goal or a previously-defined level of performance (Bandura, 1994). Social Cognitive Theory embraces the concept of personal agency, emphasizing that individuals contribute causally to their behaviors through their beliefs, thoughts, and choices (Bandura, 1989). Therefore, possessing the requisite knowledge and skills alone does not necessarily propel people toward a particular goal; they also need to have the belief that they can succeed. As a result, researchers from various fields have shown interest in examining the relationship between self-efficacy measures across numerous functional areas and the corresponding performance indicators (Haddad & Taleb, 2016; Li & Wang, 2010). The reason for this distinction is that self-efficacy is not a unitary structure, but it is a belief of capacity emerging in different fields, and competence specific to a field is an important predictor of success in the same field (Bandura, 1997).

In the field of education, the focus is often on the scholastic aspect of self-efficacy beliefs. Academic self-efficacy means students' confidence in their own skills to fulfil academic duties in educational settings and reach a high level of success (Zimmerman, 1995). Previous studies reveal that academic self-efficacy is closely related to desired educational outcomes, especially academic success (Carroll et al., 2009; Kim, 2014; Lee et al., 2014; Yusuf, 2011). As an illustrative instance, a comprehensive inquiry carried out by Honicke and Broadbent (2016) yielded findings that pointed to the existence of a moderate-level correlation between academic self-efficacy and academic attainment. Furthermore, research has shown that students' efficacy beliefs contribute significantly and uniquely to

their learning success, beyond other robust determinants of academic performance such as intelligence and personality traits (Zuffianò et al., 2013).

Having significant implications on students' cognitive, emotional and motivational processes and choices, academic self-efficacy belief provides a solid foundation for academic achievement (Schunk & DiBenedetto, 2016). Students with strong academic self-efficacy beliefs have high goals, and they study hard to reach these goals, show more resistance in the face of difficulties and are more motivated to learn (Multon et al., 1991). However, those with a low academic self-efficacy are more prone to avoid academic tasks as they do not trust their academic skills, and so they can miss out potential development opportunities (Seifert & Sutton, 2009). They give up easily and experience negative feelings such as anxiety and stress in the face of failures (Pajares & Schunk, 2002). Finally, they end up having more failures. Academic self-efficacy belief is recognized as a crucial motivational construct that helps students to reach their potentials and motivate them to put more effort in what they are doing (Schunk, 1991; Zimmerman, 2000). In this context, it is conceivable to posit that academic self-efficacy may exert an influence on the cultivation of students' study habits and the development of their academic skills.

In the broadest sense, study skills refer to students' knowledge about strategies, methods and techniques on planning, implementing and evaluating the learning process as well as the skills to use them (Credé & Kuncel, 2008; Gettinger & Seibert 2002). These skills include a wide range of cognitive, metacognitive and/or behavioral techniques and strategies such as planning and monitoring the learning process, effective time management, active listening, note-taking, repeating and summarizing information, and using keywords that will help to remember, and they are divided into different categories (Carns & Carns, 1991; Wong, 2015). The focus of the current study is on two study skill categories that are closely related to learning performance: systematic and organized study, and effective homework completion and exam preparation. Systematic and organized study includes systematic study skills such as reviewing what you learn at school and preparing study plan at home. Effective homework completion and exam preparation, on the other hand, refer to the abilities to employ successful study techniques during learning and exam preparation (Kaner & Kesiktaş, 2008). Knowing about these skills is not sufficient; students should also use them effectively. For instance, repeating information continuously causes one to learn and forget quickly at the same time. On the other hand, intermittent review ensures the permanence of learning (Roediger & Pyc, 2012). Previous research shows that effective use of study skills can significantly improve students' learning performance and contribute to their academic achievement (Fazal et al., 2012; Jansen & Suhre, 2010). For example, at the end of a 11-week program of studying and test-solving strategies administered to primary school students, their exam anxiety decreased, and academic achievement increased (Biedel, 1999). On the other hand, poor study skills can lead to negative consequences such as a low level of academic achievement, a decrease in the motivation to learn, and a high level of stress and anxiety (Credé & Kuncel, 2008).

Rationale for Hypothesized Model and Purpose of the Study

Extensive research has explored the positive effects of academic self-efficacy beliefs on student performance and related psychological constructs such as motivation, self-regulation, and anxiety across diverse learning contexts (e.g., Honicke & Broadbent, 2016; Li & Wang, 2010; Skaalvik et al., 2015). However, the interplay between

academic self-efficacy and students' study skills, especially in the context of predicting academic performance, has received limited research attention. In order to address the existing gap in the literature, this study examines the serial mediation roles of study skills in the relationship between academic self-efficacy and academic achievement, drawing on the perspective of self-regulated learning. Self-regulated learning refers to a metacognitive process that ensures students to regulate their own learning processes to reach learning goals, and so master the learning process (Zimmerman, 2015). This process consists of (1) setting one's own goals, (2) preparing an action plan to reach these goals, (3) monitoring one's own learning process and making the necessary regulations, (4) making use of various cognitive and metacognitive study skills such as organizing and summarizing information, and creating clues (Cheng, 2011; Zimmerman, 2002). Therefore, self-regulated learning involves identifying the most suitable study strategy from among many various alternatives and using it effectively at the same time. Several authors in the field highlight the pivotal role of academic self-efficacy beliefs in the process of self-regulated learning (Usher & Pajares, 2008; Zimmerman et al., 2017). As mentioned before, students with strong self-efficacy beliefs set challenging goals for themselves, use cognitive and metacognitive strategies in the learning process more often, persist more when they encounter difficulties, study harder and preserve their motivation for longer. Therefore, self-efficacy beliefs affect all stages of self-regulated learning process (Pajares, 2002). Considering its significant impact on the self-regulated learning process, it seems possible to suggest that academic self-efficacy beliefs will encourage students to adopt systematic study and exam preparation strategies such as creating a study plan, regular review, preparing for the topic, completing homework, and reviewing their mistakes, and this will in turn contribute to their academic achievement. This study aims to investigate the serial mediation effect of systematic and organized study, and effective homework and exam preparation on the relationship between academic self-efficacy and academic achievement. In this context, the hypothesized model, which was developed based on theoretical implications and findings from previous studies in the literature, is presented in Figure 1.

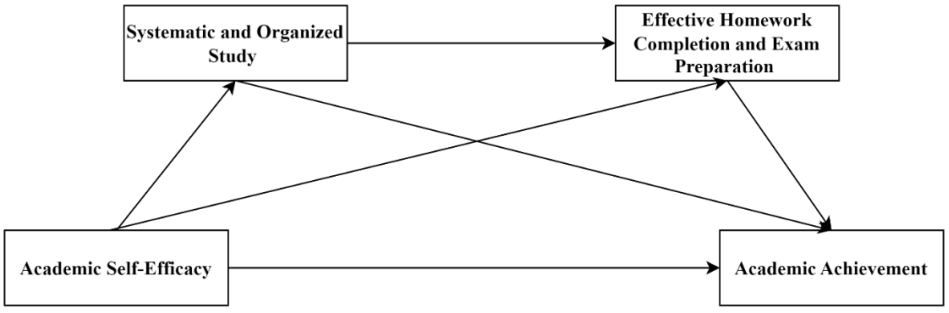


Figure 1. Hypotezised Conceptual Model

Methods

Study Group

This study involved 392 students from four different public middle schools located in Yozgat, Turkey. Of the participants, 207 (52.8%) were female and 185 (47.2%) were male. The grade distribution for the students was 84

(21.4%), 119 (30.4%), 91 (23.2%), and 98 (25%) for the 5th, 6th, 7th, and 8th grades, respectively. The ages of participants ranged between 10-15, with an average age of 12.30 (±1.42).

Procedure

In the initial stage, necessary permissions and consent forms were obtained from all potential participants and their families. The data were collected by the researcher through face-to-face questionnaires administered in the classrooms. Students completed the scales in an average of 30 minutes. Additionally, the present study received approval from the Social and Human Sciences Ethics Committee of Yozgat Bozok University (Date: 18/05/2022, Approval Number: 33/17).

Research Instruments

Demographic Information Form

The participants' demographic information, including age, grade level and gender was collected using a form developed by the researcher.Academic achievement was evaluated based on Grade Point Average (GPA).

Academic Self-Efficacy Scale (ASE)

ASE was initially designed by Jinks and Morgan (1999) to evaluate self-efficacy beliefs of middle school students and later adapted into Turkish by Öncü (2012). The Turkish version of ASE includes three subscales: ability, environment, and quality of education. Participants are asked to rate 21 items on a four-point Likert scale, spanning from 1 (Strongly Disagree) to 4 (Strongly Agree). The cumulative scores on the scale can vary between 21 and 84, with higher scores indicating stronger academic self-efficacy beliefs. In the adaptation study, the Confirmatory Factor Analysis (CFA) demonstrated that the structure of the Turkish version of ASE, consisting of 21 items and three factors, well fit the data. Additionally, Cronbach's alpha coefficients for reliability were reported as .81 for the overall scale (Öncü, 2012). In this study, the Cronbach's alpha coefficient was found to be .80.

Study Skills Scale

This scale was designed by Kaner and Kesiktaş (2008) to assess the study skills of elementary and middle school students. It comprises 55 items designed in a three-point Likert format (1= Never, 2= Sometimes, 3= Always) and includes six subscales: effective homework completion and exam preparation, systematic and organized study, difficulties encountered in learning, arranging the environment, help-seeking, and appropriate in-class behaviours. In this study, only two subscales were utilized: effective homework completion and exam preparation (EHC-EP), which consists of 18 items, and systematic and organized study (SOS), which includes 10 items. The total scores for the EHC-EP subscale can range from 18 to 54. Higher scores indicate that students employ more effective strategies when doing homework and preparing for exams. The potential scores for the SOS subscale can range from 10 to 30. Higher scores suggest that students employ more systematic study skills. In the development study of the scale, it was reported that the six-factor model accounted for 36.41% of the total variance. The effective homework completion and exam preparation subscale explained 9.62% of the overall variance, while the systematic and organized study subscale explained 8.06%. Additionally, the reported Cronbach's alpha coefficients were .89 and .81

for these subscales, respectively (Kaner & Kesiktaş, 2008). In this study, the Cronbach's alpha coefficients for these subscales were found to be .82 and .78, respectively.

Data Analysis

In the preliminary stage, the dataset was initially examined to identify whether there were any missing value or outliers. The rate of missing data for each item was below 5%; therefore, missing data were not removed but were instead imputed using the series mean method. However, 14 outliers detected using the Mahalanobis distance method were excluded from the dataset. Means, medians, standard deviations, and skewness-kurtosis coefficients were calculated for each research variable individually. The Pearson Product-Moment Correlation Coefficient was utilized to analyze the relationships between the study variables. Given the self-reported nature of the data, a Harman's single-factor test was employed to evaluate the potential presence of Common Method Bias. The assumption of normality was evaluated by examining skewness and kurtosis coefficients, while the assumption of multicollinearity was verified through Variance Inflation Factor (VIF) and Tolerance (T) values.

The serial mediation model was investigated using the PROCESS macro (Model 6) within the SPSS (Hayes, 2018). This approach, which is based on an ordinary least squares model and a bootstrapping procedure, offers greater statistical power in mediation analyses compared to the traditional three-step method (Preacher & Hayes, 2008). In this study, the bootstrapping procedure was applied with 5000 bootstrapped samples, and a 95% confidence interval.

Results

Testing for Common Method Bias and Assumptions of Regression

Prior to the main analyses, the dataset was examined for common method bias and assumptions of regression analysis. Harman's single-factor test showed that a unidimensional structure explained only 14.89% of the total variance, indicating the absence of concerns regarding common method bias (Podsakoff et al., 2003). The skewness and kurtosis coefficients were found to be between -2 and +2 for all research variables, indicating that the normality assumption was met (George & Mallery, 2016). Additionally, the VIF values were all below 10 (ranging from 1.28 to 1.50), and the tolerance values were higher than 0.20 (ranging from 0.66 to 0.78). As a result, it was concluded that multicollinearity was not a concern (Büyüköztürk, 2005).

Preliminary Analyses and Pearson Correlations

Table 1 presents the descriptive statistics and Pearson correlations for the research variables. As expected, the results revealed positive correlations among all research variables. Specifically, academic self-efficacy demonstrated positive associations with SOS (r = .39, p < .01), EHC-EP (r = .44, p< .01), and academic achievement (r = .49, p< .01). In addition, SOS showed positive associations with EHC-EP (r = .56, p< .01), and academic achievement (r = .38, p< .01). Finally, EHC-EP showed a significant and positive correlation with academic achievement (r = .41, p< .01).

Table 1

Descriptive Statistics and Bivariate Correlations for Study Variables

Variables	Mean	SD	Skewness	Kurtosis	1	2	3	4
1. ASE	62.49	9.21	.02	.08	-			
2. SOS	20.04	3.67	.02	-.32	.39**	-		
3. EHC-EP	46.33	4.70	-.89	1.54	.44**	.56**	-	
4. GPA	75.62	12.73	.11	.08	.49**	.38**	.41**	-

** p< .01; ASE: Academic sel-efficacy; SOS: Systematic and Organized Study; EHC-EP: Effective Homework Completion and Exam Preparation; GPA: Grade Point Average

Testing the Hypothesized Model and Serial Mediation Effect

The serial mediation effect of SOS, and EHC-EP on the relationship between academic self-efficacy and academic achievement was investigated using Model 6 in the SPSS PROCESS macro. The results of regression analysis were provided in Table 2. The results revealed that the direct effect of academic self-efficacy on academic achievement was statistically significant (β= .371, p<.001). Moreover, academic self-efficacy positively predicted SOS (β= .387, p<.001), which in turn positively predicted academic achievement (β= .154, p<.01). Additionally, academic self-efficacy positively predicted EHC-EP (β= .259, p<.001), which in turn positively predicted academic achievement (β= .161, p<.01). Finally, SOS positively predicted EHC-EP (β= .460, p<.001), suggesting the presence of a serial mediation effect. The visual representation of the serial mediation model, including standardized regression coefficients, was presented in Figure 2.

Table 2

Results of Regression Analysis

Dependent Variable	Predictor Variables	R	R^2	F	β	t
SOS	ASE	.387	.149	68.642	.387	8.285***
EHC-EP	ASE	.609	.371	115.079	.259	5.961***
	SOS				.460	10.557***
GPA	ASE	.557	.311	58.346	.371	7.770***
	SOS				.154	2.962**
	EHC-EP				.161	3.019**

** p< .01, *** p< .0001

The statistical significance of the serial mediation effect was investigated using a bootstrapping procedure with a 95% confidence interval and 5000 bootstrapped samples. The results (Table 3) demonstrated that the total indirect effect of academic self-efficacy on academic achievement via SOS and EHC-EP was statistically significant (*B* = .179, 95% CI [.106, .262]), accounting for 25.87% of its total effect. Specifically, the indirect effect of academic self-efficacy on academic achievement was manifested through three significant mediating mechanisms: (1) through SOS (*B* = .082, 95% CI [.023, .147]), (2) through EHC-EP (*B* = .058, 95% CI [.013, .110]), and (3) through serial mediation involving both SOS and EHC-EP (*B* = .039, 95% CI [.009, .077]). These pathways accounted for 11.85%,

8.38%, and 5.64% of the total effect, respectively. Taken together, these results suggest that both SOS and EHC-EP may play partial mediating roles in the relationship between academic self-efficacy and academic achievement.

Table 3

Unstandardized Direct, Indirect, and Total Effect of Academic Self-Efficacy on Academic Achievement

Effects		***B***	**BootSE**	**95% CI**	
				LL	**UL**
Total effect		.692	.061	.573	.811
Direct effect		.513	.066	.383	.642
Total indirect effect		.179	.039	.106	.262
Indirect effect 1	X → M1 → Y	.082	.032	.023	.147
Indirect effect 2	X → M2 → Y	.058	.025	.013	.110
Indirect effect 3	X → M1 → M2 → Y	.039	.018	.009	.077

X: Academic self-efficacy; M1: Systematic and organized study; M2: Effective homework completion and exam preparation; Y: Academic achievement

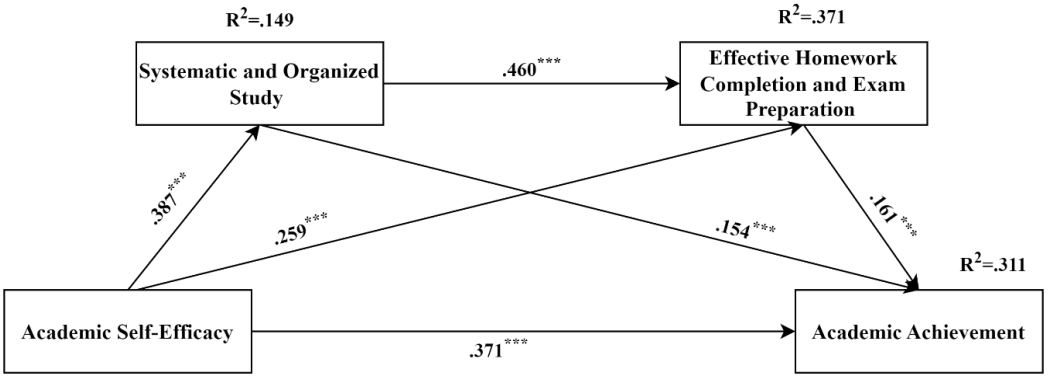


Figure 2. Serial Mediation Model with Standardized Regression Coefficients

Discussion, Conclusion & Suggestions

Educational success is crucial for both individual and social welfare, and it also has a significant impact on students' psychosocial development. Identifying the factors that influence students' learning performance can guide the design of interventions, implementations, and programs that optimize learning environments and improve student outcomes. The current study examined the serial mediating role of specific study skills (systematic and organized study, and effective homework completion and exam preparation) on the linkage between academic self-efficacy and school success. The results of serial mediation analysis confirmed the hypothesized relationships among the study variables.

Parallel with the previous studies in the literature, the current study found a positive relationship between students' academic self-efficacy beliefs and their academic achievement (Honicke & Broadbent, 2016; Koca &

Dadandı, 2019; Zysberg & Schwabsky, 2021). The Social Cognitive Theory suggests that self-efficacy belief is one of the basic mechanisms that direct and regulate human behaviours (Bandura, 1990). In this line, a high level of academic self-efficacy belief activates a series of cognitive, affective and behavioral process that can support the learning performance. Students with a high level of self-efficacy beliefs tend towards challenging activities that provide them with the opportunity to improve their scholastic skills, and they are open to learning and more willing to participate in educational activities (Schunk, 2003). As they believe that they have the necessary skills and capabilities, they tend to persist and act with a high level of motivation during the learning process even if they fail. Furthermore, they experience fewer negative feelings that damage learning performance, such as stress and anxiety, compared to their peers with lower academic self-efficacy beliefs (Pajares & Schunk, 2002). It is possible to suggest that when considered together, students' beliefs in their own academic abilities can facilitate their concentration on academic studies and the effective management of the learning process. Consequently, this can lead to a higher level of learning and success. In fact, Bandura (1997) highlights that self-efficacy belief is a power that enables students to turn their academic knowledge and skills into effective performance, and students with similar levels of knowledge and skills can have different levels of learning outcomes depending on their self-efficacy beliefs. In this context, the current study is deemed to be in parallel with the Social Cognitive Theory.

The outcomes derived from the serial mediation analysis stand to enhance our comprehension of the intricate dynamics characterizing the interrelationship between academic self-efficacy and the attainment of academic success. These results showed that both systematic and organized study, and effective homework completion and exam preparation played partial mediating roles in the relationship between academic self-efficacy and academic achievement. This means that a high level of self-efficacy belief can increase students' likelihood to adopt strategies and techniques regarding systematic and organized study, and effective homework completion and exam preparation, which will in turn contribute to their academic achievement. From the perspective of self-regulated learning, the current study findings reinforce the previous studies in the literature that underline the academic self-efficacy beliefs as a critical factor in self-regulated learning process (Usher & Pajares, 2008; Zimmerman et al., 2017). Therefore, the current result can be explained in line with self-regulation skills. Self-regulation process is composed of a feedback circle consisting of anticipating the performance – monitoring the performance – self-evaluation (Cleary & Zimmerman, 2012). Likewise, identifying and using the most suitable strategy and technique among many others involves self-monitoring and self-evaluation, in other words, a self-regulation process. According to the Social Cognitive Theory, self-efficacy beliefs encourage individuals to adopt behaviours of self-regulation and self-adjustment (Bandura, 1989). Students with a strong sense of academic self-efficacy resort to self-regulation strategies such as seeking help and changing their learning strategy in order to improve their learning performance when they feel insufficient (Schunk & Mullen, 2012). Hence, academic self-efficacy beliefs can activate the self-regulation process and help students to evaluate the efficiency of study strategies they use and explore the most suitable one for themselves. In this particular context, individuals harboring robust self-efficacy beliefs are apt to employ study strategies and techniques with a heightened degree of effectiveness and proficiency. It is possible to offer another possible explanation for this result relying on the relationship between self-efficacy and motivation. In fact, students should be motivated to study in order to adopt and use study skills. Those students who do not have

enough motivation might find it boring to study or perceive studying as an obligation (Demirezen & Akhan, 2013). Therefore, even if they know about effective study strategies and techniques, they may not use them. However, academic self-efficacy beliefs can help students to find the motivation they need to spare time for learning activities and make use of study strategies.

According to the second part of the mediation mechanism, systematic study and use of effective study techniques during exam preparation contribute to students' academic achievement. This result supports the previous study findings (Fazal et al., 2012; Jansen & Suhre, 2010). Using strategies such as studying regularly, arranging the studying environment, noting down and summarizing the important pieces of information can improve learning by enabling students to process information more effectively. This can have a positive influence on their learning and exam performance. The results of a meta-analysis study conducted by Purdie and Hattie (1999) show that spending more time on studying does not contribute to success significantly, but having a wide range of study skills (i.e. versatility) is significantly related to both cognitive and affective results. When synthesized in a comprehensive manner, the findings of the present study imply that the cultivation of systematic and efficacious study skills may assume a pivotal and consequential role within the domain of the learning process.

The current study findings also indicate that interventions, implementations and policies that aim to improve students' academic self-efficacy beliefs and study skills can contribute to academic achievement and other student outcomes. Having a robust academic self-efficacy belief can increase students' motivation to learn and encourage them to use more effective study techniques. Bandura (1995) proposes that self-efficacy beliefs have four sources: mastery experiences, vicarious experiences, verbal persuasion and emotional state. In this context, teachers can take the advantage of differentiated instruction that aims to adjust teaching, academic tasks and assignments in line with students' personal skills and needs during in-class activities. Such an approach can support students' self-efficacy beliefs by providing them with mastery experiences in educational settings (Ramli & Nurahimah, 2020). Moreover, teachers can help students to improve their self-efficacy beliefs by making use of vicarious experiences such as peer models as well as verbal persuasion methods such as positive feedback and encouragement. Also, school counsellors can develop psychological interventions in order to strengthen students' self-efficacy beliefs. However, such interventions should not aim to strengthen students' self-efficacy beliefs artificially but to make their self-efficacy compatible with their current skills and capabilities. Self-efficacy beliefs that have been strengthened via secondary methods such as vicarious experiences and persuasion can last for a short period of time unless supported by expert experiences, and finally they can be easily inactivated by experiences of failure (Schunk, 1991).

Although the current study has significant theoretical and practical outputs, it should be noted that it also has some limitations. Firstly, the correlational nature of the study does not allow one to make precise causal inferences among the study variables. Therefore, there is a possibility that the relationships established among academic self-efficacy, study skills and academic achievement can work in reverse directions. Further research with experimental or longitudinal design can more precisely explore the causal relationships among these variables. Secondly, the current study sample is composed of only secondary school students. Testing the current model with sample groups including more demographic variety such as primary school, high school and university students can increase the

generalizability of the findings. Thirdly, the current method of measurement relies on self-report, which makes the results vulnerable to measurement errors resulting from participants such as social desirability bias. Future studies can take the advantage of additional measurement tools such as teacher and parent evaluations in order to minimize this kind of error. Finally, the current study focuses only on learners' features to explain academic achievement. A deeper understanding of the issue can be possible via enriching the model by adding contextual factors such as socioeconomic level, teacher support, school resources and peer support.

Conclusion

In conclusion, the current study contributes to the literature by putting forth that systematic and organized study, and effective homework completion and exam preparation have a serial mediation effect on the relationship between academic self-efficacy and academic achievement. The acquisition of disciplined study habits and the assimilation of efficacious learning strategies are as crucial as innate talent in achieving high educational success. Strong academic self-efficacy can further enhance learning outcomes by motivating students to employ effective study strategies.

Ethic

This study was approved by Yozgat Bozok University Social and Human Sciences Ethics Committee (Date: 18/05/2022, Approval Number: 33/17).

Conflict of Interest

The authors declare that they have no conflict of interest.

Funding

No scholarships or payments have been received from any institution for this article.

References

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, *44*(9), 1175-1184. https://doi.org/10.1037/0003-066X.44.9.1175

Bandura, A. (1990). Perceived self-efficacy in the exercise of personal agency. *Journal of Applied Sport Psychology*, *2*(2), 128-163. https://doi.org/10.1080/10413209008406426

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). Academic Press.

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 1-45). Cambridge University Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman and Company.

Beidel, D. C., Turner, S. M., & Taylor-Ferreira, J. C. (1999). Teaching study skills and test-taking strategies to elementary school students: The testbusters program. *Behavior Modification*, *23*(4), 630-646. https://doi.org/10.1177/0145445599234007

Bücker, S., Nuraydin, S., Simonsmeier, B. A., Schneider, M., & Luhmann, M. (2018). Subjective well-being and academic achievement: A meta-analysis. *Journal of Research in Personality*, *74*, 83-94. https://doi.org/10.1016/j.jrp.2018.02.007

Büyüköztürk, Ş. (2005). *Sosyal bilimler için veri analizi el kitabı* [Data analysis handbook for social sciences]. PegemA.

Carns, A. W., & Carns, M. R. (1991). Teaching study skills, cognitive strategies, and metacognitive skills through self-diagnosed learning styles. *The School Counselor*, *38*(5), 341-346. http://www.jstor.org/stable/23900724

Carroll, A., Houghton, S., Wood, R., Unsworth, K., Hattie, J., Gordon, L., & Bower, J. (2009). Self-efficacy and academic achievement in Australian high school students: The mediating effects of academic aspirations and delinquency. *Journal of Adolescence*, *32*(4), 797-817. https://doi.org/10.1016/j.adolescence.2008.10.009

Cheng, E. C. K. (2011). The role of self-regulated learning in enhancing learning performance. *The International Journal of Research and Review*, *6*(1), 1-16.

Cleary, T. J. & Zimmerman, B. J. (2012). A cyclical self-regulatory account of student engagement: Theoretical foundations and applicatins. In S. L. Christenson, A. L. Reschly & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 237-259). Pearson.

Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, *3*(6), 425-453. https://doi.org/10.1111/j.1745-6924.2008.00089.x

Crum, R. M., Ensminger, M. E., Ro, M. J., & McCord, J. (1998). The association of educational achievement and school dropout with risk of alcoholism: A twenty-five-year prospective study of inner-city children. *Journal of Studies on Alcohol*, *59*(3), 318-326. https://doi.org/10.15288/jsa.1998.59.318

Demirezen, S., & Akhan, N. E. (2013). İlköğretim öğrencilerinin ders çalışma üzerine algıları [The perceptions of primary school students on studying lesson]. *Karadeniz Sosyal Bilimler* Dergisi [The Black Sea Journal of Social Sciences], *5*(8), 169-183.

Fazal, S., Hussain, S., & Majoka, M. I. (2012). The role of study skills in academic achievement. *Pakistan Journal of Psychological Research*, *27*(1), 37-51.

George, D. & Mallery, M. (2016). *SPSS for Windows Step by Step: A Simple Guide and Reference*, *17.0 update* (15th ed.). Routledge.

Gettinger, M., & Seibert, J. K. (2002). Contributions of study skills to academic competence. *School Psychology Review*, *31*(3), 350-365. https://doi.org/10.1080/02796015.2002.12086160

Gölpek, F., & Uğurlugelen, K. (2013). Avrupa ülkelerinde ve Türkiye'de yükseköğretime giriş sistemleri [Entry systems of higher education in European countrys and Turkey]. *Dicle Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi* [Dicle University Journal of Economics and Administrative Sciences], *2*(5), 64-77.

Haddad, S. I., & Taleb, R. A. (2016). The impact of self-efficacy on performance (An empirical study on business faculty members in Jordanian universities). *Computers in Human Behavior*, *55*, 877-887. https://doi.org/10.1016/j.chb.2015.10.032

Hattie, J. A. (2009). *Visible Learning: A synthesis of over 800 meta-analyses relating to achievement.* Routledge.

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford.

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, *17*, 63-84. https://doi.org/10.1016/j.edurev.2015.11.002

Huang, C. (2015). Academic achievement and subsequent depression: A meta-analysis of longitudinal studies. *Journal of Child and Family Studies*, *24*, 434-442. https://doi.org/10.1007/s10826-013-9855-6

Jansen, E. P., & Suhre, C. J. (2010). The effect of secondary school study skills preparation on first-year university achievement. *Educational Studies*, *36*(5), 569-580. https://doi.org/10.1080/03055691003729070

Jinks, J., & Morgan, V. (1999). Children's perceived academic self-efficacy: An inventory scale. *The Clearing House*, *72*(4), 224-230. https://doi.org/10.1080/00098659909599398

Kaner, S., & Kesiktaş, A. D. (2008). Ders çalışma becerileri ölçeği ana-baba, öğretmen ve öğrenci formlarının psikometrik özellikleri [The psychometric properties of the parent, teacher and student versions of the study skills scale]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi* [Ankara University Journal of Faculty of Educational Sciences], *41* (2), 293-321.

Kern, M. L., & Friedman, H. S. (2009). Early educational milestones as predictors of lifelong academic achievement, midlife adjustment, and longevity. *Journal of Applied Developmental Psychology*, *30*(4), 419-430. https://doi.org/10.1016/j.appdev.2008.12.025

Kim, M. (2014). Family background, students' academic self-efficacy, and students' career and life success expectations. *International Journal for the Advancement of Counselling*, *36*(4), 395-407. https://doi.org/10.1007/s10447-014-9216-1

Koca, F., & Dadandı, İ. (2019). Akademik öz-yeterlik ile akademik başarı arasındaki ilişkide sınav kaygısı ve akademik motivasyonun aracı rolü [The mediation roles of test anxiety and academic motivation in the relationship between academic self-efficacy and academic achievement]. *Ilkogretim Online* [Elementary Education Online], *18*(1), 241-252.

Lee, W., Lee, M. J., & Bong, M. (2014). Testing interest and self-efficacy as predictors of academic self-regulation and achievement. *Contemporary Educational Psychology*, *39*(2), 86-99. https://doi.org/10.1016/j.cedpsych.2014.02.002

Li, Y., & Wang, C. (2010). An empirical study of reading self-efficacy and the use of reading strategies in the Chinese EFL context. *Asian EFL Journal*, *12*(2), 144-162.

Möller, J., Zitzmann, S., Helm, F., Machts, N., & Wolff, F. (2020). A meta-analysis of relations between achievement and self-concept. *Review of Educational Research*, *90*(3), 376-419. https://doi.org/10.3102/0034654320919354

Multon, K. D., Brown, S. D. & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, *38*, 30-38. https://doi.org/10.1037/0022-0167.38.1.30

Öncü, H. (2012). Akademik Özyeterlik Ölçeğinin Türkçe'ye uyarlanması [Adaptation of academic self-efficacy scale into Turkish]. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi* [Journal of Kırşehir Education Faculty], *13*(1), 183-206.

Pajares, F. (2002). Gender and perceived self-efficacy in self-regulated learning. *Theory into Practice*, *41*(2), 116-125. https://doi.org/10.1207/s15430421tip4102_8

Pajares, F. & Schunk, D. H. (2002). Self and self-belief in psychology and education: An historical perspective. In J. Aronson (Ed.), *Improving academic achievement* (pp. 5-22). Academic Press.

Pérez, P. M., Costa, J. L. C., & Corbí, R. G. (2012). An explanatory model of academic achievement based on aptitudes, goal orientations, self-concept and learning strategies. *The Spanish Journal of Psychology*, *15*(1), 48-60. https://doi.org/10.5209/rev_SJOP.2012.v15.n1.37283

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879-891. https://doi.org/10.3758/BRM.40.3.879

Purdie, N., & Hattie, J. (1999). The relationship between study skills and learning outcomes: A meta-analysis. *Australian Journal of Education*, *43*(1), 72-86. https://doi.org/10.1177/000494419904300106

Ramli, R., & Nurahimah, M. Y. (2020). Self-efficacy and differentiated instruction: A study among Malaysian school teachers. *Universal Journal of Educational Research*, *8*(4), 1252-1260. https://doi.org/10.13189/ujer.2020.080416

Roediger III, H. L., & Pyc, M. A. (2012). Inexpensive techniques to improve education: Applying cognitive psychology to enhance educational practice. *Journal of Applied Research in Memory and Cognition*, *1*(4), 242-248. https://doi.org/10.1016/j.jarmac.2012.09.002

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, *26*(3-4), 207-231. https://doi.org/10.1080/00461520.1991.9653133

Schunk, D. H. (2003). Self-efficacy for reading and writing: Influence of modeling, goal setting, and self-evaluation. *Reading & Writing Quarterly*, *19*(2), 159-172. https://doi.org/10.1080/10573560308219

Schunk, D. H. & Mullen, C. A. (2012). Self-efficacy as an engaged learner. In S. L. Christenson, A. L. Reschly & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 219-237). Springer.

Schunk, D. H., & DiBenedetto, M. K. (2016). Self-efficacy theory in education. In K. R. Wentzel & D. B. Miele (Eds.), *Handbook of mativation at school* (2nd ed., pp. 34-54). Routledge.

Seifert, K. & Sutton, R. (2009*). Educational psychology* (2nd ed.). Jacobs Foundation.

Skaalvik, E. M., Federici, R. A., & Klassen, R. M. (2015). Mathematics achievement and self-efficacy: Relations with motivation for mathematics. *International Journal of Educational Research*, *72*, 129-136. https://doi.org/10.1016/j.ijer.2015.06.008

Spinath, B. (2012). Academic achievement. In V. S. Ramachandran (Ed.), *Encyclopedia of human behaviour* (pp. 1-9). Academic Press.

Usher, E. L., & Pajares, F. (2008). Self-efficacy for self-regulated learning: A validation study. *Educational and Psychological Measurement*, *68*(3), 443-463. https://doi.org/10.1177/0013164407308475

Veas, A., Castejón, J. L., Gilar, R., & Miñano, P. (2015). Academic achievement in early adolescence: The influence of cognitive and non-cognitive variables. *The Journal of General Psychology*, *142*(4), 273-294. https://doi.org/10.1080/00221309.2015.1092940

Wong, L. (2015). *Essential study skilss* (8th ed.). Cengage Learning.

Yusuf, M. (2011). The impact of self-efficacy, achievement motivation, and self-regulated learning strategies on students' academic achievement. *Procedia-Social and Behavioral Sciences*, *15*, 2623-2626. https://doi.org/10.1016/j.sbspro.2011.04.158

Zimmerman, B. J. (1995). Self-efficacy and educational development. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 232-259). Cambridge University Press.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, *25*(1), 82-91. https://doi.org/10.1006/ceps.1999.1016

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, *41*(2), 64-70. https://doi.org/10.1207/s15430421tip4102_2

Zimmerman, B. J. (2015). Self-regulated learning: Theories, measures, and outcomes. In J. D. Wright (Ed.), *International encyclopedia of the social & behavioral sciences* (pp. 541-546). Elsevier.

Zimmerman, B. J., Schunk, D. H., & DiBenedetto, M. K. (2017). The role of self-efficacy and related beliefs in self-regulation of learning and performance. In A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and application* (pp. 313–333). The Guilford Press.

Zuffianò, A., Alessandri, G., Gerbino, M., Kanacri, B. P. L., Di Giunta, L., Milioni, M., & Caprara, G. V. (2013). Academic achievement: The unique contribution of self-efficacy beliefs in self-regulated learning beyond intelligence, personality traits, and self-esteem. *Learning and Individual Differences*, *23*, 158-162. https://doi.org/10.1016/j.lindif.2012.07.010

Zysberg, L., & Schwabsky, N. (2021). School climate, academic self-efficacy and student achievement. *Educational Psychology*, *41*(4), 467-482. https://doi.org/10.1080/01443410.2020.1813690

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: August 18, 2023
Accepted: September 25, 2023
http://dergipark.org.tr/rep

e-ISSN: 2602-3733

September 2023 ◆ 7(2) ◆ 307-327
Research Article **https://doi.org/10.54535/rep.1345542**

How Do Pre-Service Primary School Teachers Evaluate Gender Equality in Primary School Science Textbooks?

Sema Aydin Ceran

Selcuk University

Abstract

Textbooks play a key role in shaping students' images of society and its actors. Based on the importance of this active role, in this study, third and fourth grade primary school science textbooks were examined in terms of gender equality by female pre-service primary school teachers who will become the practitioners using these textbooks. Thus, this research aims at revealing the experiences of pre-service primary school teachers based on their examination of primary school science textbooks and the evaluations used in their textbook reviews. The research was conducted using a phenomenology research design in the context of a qualitative method. Ten female pre-service primary school teachers participated in the study, which lasted seven weeks, and the data were collected through a textbook review report and a semi-structured interview form. A content analysis method was used to assess the data. The results of the study were discussed within the framework of five main themes: gender distribution, gender roles and stereotypes, the role of the teacher, the role of the textbooks, and science textbook evaluation tendencies. Suggestions were made based on these reviews.

Keywords

Gender equality • Primary school science textbooks • Textbook review

Correspondence to: Sema Aydin Ceran, Selcuk University, Faculty of Education, Department of Elementary Education, Konya, Türkiye. E-mail: sema.aydinceran@selcuk.edu.tr **ORCID:** 0000-0001-6847-2766

Citation: Aydin Ceran, S. (2023). How do pre-service primary school teachers evaluate gender equality in primary school science textbooks? *Research on Education and Psychology (REP), 7*(2), 307-327.

Gender, which we cannot choose when we enter the world, is a biological concept. There are some roles that societies choose and impose on the concept of gender, and these affect our lives to a varying extent. Oakley (2005) defines gender as the socially unequal division between masculinity and femininity. The gender roles created by this division are social categories that determine how men and women should think, speak, dress, and interact (Misra & Strader, 2013). This society, which consists of the social categories into which a baby is born, shape the child in behavior patterns that are deemed appropriate for women and men (Gümüşoğlu, 2008), and often these are not equally distributed in societies. This situation, known as gender inequality, can have many sociological reasons (Yang & Aldrich, 2014). Education policies play an active role in shaping this dynamic process that has emerged from the past to the present in the form of unequal distribution of social roles. Gender equality, where education policies are decisive, is considered within the framework of fundamental human rights and is seen as a prerequisite for sustainable and human-centered development (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021).

Children who observe social roles attributed to men and women prior to primary school may have these roles reinforced through the educational system. These roles may manifest in ways that empower children or make them feel powerless (Freire & Macedo, 1998). It is a known fact that the information learned by children who start school constitutes one of the main elements of the socialization process, and that its effect not only remains with the student and the school but also affects the whole society (Güvenli & Tanrıöver, 2009). Gender roles are important for individuals in the socialization process, and schools and textbooks are of great importance in the formation of these roles. School, as the main place where cultural and social values are transmitted and reproduced, is an institution where gender identities mature (Sönmez & Dikmenli, 2021). In addition, curriculum design and textbooks are the most obvious areas where gender bias can be detected (Delamont, 2012). Research on gender roles has also revealed that common social stereotypes (Dökmen, 2015) are often reinforced in school texts (Anderson & Hamilton, 2005: Blumberg, 2008; Chick, 2006; Evans & Davies, 2000; Jassey 1998; Law & Chan, 2004; Lee & Collins, 2009; Taylor, 2003). However, in studies examining gender roles in textbooks from the early years of the republic to the present day in Turkey, women and men shared the duties and responsibilities equally and the importance of women in every field was emphasized until the 1950s (Gümüşoğlu, 2008). In studies conducted from 1950 to the present day, it has beeen determined that women are responsible for housework and childcare, while men provide for the house and keep the family together (Gümüşoğlu, 2008; Helvacıoğlu, 1996; Sönmez & Dikmenli, 2021). Thus, gender bias in textbooks is recognized as an invisible barrier to equality in education (Blumberg, 2008).

Textbooks play a key role in shaping students' images of the world and its actors (MacDonald, 1976). The visual and written content of textbooks often contain sexist elements and this situation is encountered in many books in many branches from the first grade of primary school to the last year of high school (Özdemir & Karaboğa, 2019). Although these stereotypes exist at all age levels, children become aware of their gender categories at an early age (Jackson & Warin, 2000). Therefore, the primary school years, when many academic and social elements are encountered for the first time, are an important period in developing a conscious perception of gender roles. Moreover, children are exposed to a wide variety of subject matter in the primary school curriculum, which is crucial in shaping students' social values (Law & Chan, 2004). Children meet the stereotypes of the adult world through

books and become candidates for the adult world through these stereotypes (Çatalcalı Soyer, 2009). For this reason, within the scope of this research, textbooks belonging to the primary school grades, which are considered to have an active role in the development of social stereotypes, are the main focus. The components of this key concept are the classroom teacher candidates who will be the users of the science textbooks taught in the primary schools in Turkey.

In Turkey, with a decision made by the Ministry of National Education (MoNE), textbooks have been distributed free of charge to students since the 2003-2004 academic year. The content of textbooks is prepared under the control of the Ministry of National Education and supervised by the Ministry of National Education. Misrepresentations in science textbooks have a serious impact on students' general perceptions of the subject (Akerson et al., 2008; McDonald & Abd-El-Khalick, 2017). UNESCO (2021) aims to increase the number of women scientists internationally, and to promote them to management positions with equal opportunities. UNESCO further promotes STEM (science, technology, engineering and mathematics) education to girls at an early age so that they can have equal opportunities at all levels, as they will become future role models for girls. Moreover, societal stereotypes and the gender biases they propagate may be preventing girls and women who would excel in STEM disciplines from pursuing appropriate education, employment, and career success (Hand et al., 2017). Therefore, science textbooks have an important mission in increasing the representation of girls in all areas of society.

When the literature is examined, research on science textbooks can be found. These studies are based on examining science textbooks in terms of visual design principles (Uçar & Özerbaş, 2016), nature of science components (Duruk & Akgün, 2020), scientific process skills (Abd-El-Khalick et al., 2017; Chua et al. 2019), analysis of science concepts (Brito et al., 2005), compliance with the curriculum (Karamustafaoğlu & Üstün, 2004; Yıldız Yılmaz & Tabaru, 2017) and science activities (Bakırcı & Öçsoy, 2017). Eroğlu-Doğan et al. (2020), in their mega-analysis, state that studies on science textbooks in national and international literature are examined in terms of including the nature of science, and scientific literacy, the appropriateness of the content to the results of scientific research, the order of the subjects and the visual elements used in the books. Therefore, there have been no studies in Turkey that examine science textbooks in terms of gender roles. Since they are thought to have a decisive role in reflecting gender equality, science textbooks, especially at the primary school level, are a main component of this study.

The other main component of the research is the pre-service primary school teachers who will instruct the science courses in primary school and employ the science textbooks. Indeed, Hand et al. (2017), who examined gender role bias, found that teachers exhibited a subtle bias by attributing more masculine characteristics to a scientist and feminine characteristics to the humanities. For this reason, creating a perspective on gender roles and stereotypes in pre-service primary school teachers before they begin teaching is a focal element of the study. Accordingly, in this study, 3rd and 4th grade science textbooks were analyzed by female pre-service primary school teachers in terms of gender roles. Based on these explanations, the aim of the study is to reveal the experiences of pre-service primary school teachers based on their examination of gender factors in science textbooks and their tendency to evaluate them in the context of gender equality.

Method

Research Design

This study was conducted using a phenomenological method within the scope of qualitative research. The main purpose of phenomenological studies is to provide a more general understanding and evaluation of a phenomenon or situation based on lived experiences (Creswell, 2013; Miller, 2003). Phenomenology primarily seeks to describe the world experienced by individuals to discover the common meanings underlying the phenomenon and to explain the essence of lived experiences (Baker et al., 1992). In order to define the essence, this method advocates bracketing, i.e., keeping the subjective experience separate from previous meanings as if using a bracket (Creswell, 2013; Groenewald, 2004; Moustakas, 1994). Within the scope of this study, concepts such as "gender roles," "gender inequality," and "social stereotypes" that pre-service primary school teachers encounter in primary school science textbooks were bracketed and kept separate from all other elements in the textbooks. Aligned with this, the focus was on pre-service primary school teachers' experiences of gender equality in the analysis of primary school science textbooks and their general thoughts on textbook evaluation.

Participants

The study group in this research consisted of ten pre-service primary school teachers studying in the department of education of a university in Turkey in the 2022-2023 academic year. The size of the study group in phenomenological studies varies between 10 and 15 people (Starks & Trinidad, 2007). The ages of the participants were between 19-21 years old. The participants were selected among 18 students who took the elective course, Analyzing Textbooks in Primary School, for one semester. Gender was decisive in this selection, and all participants were female. The reason for this is that women are the individuals who feel and experience gender inequality more in society. Thus, it was aimed at integrating their daily lives as female pre-service teachers with their observations of textbooks and to create an intellectual experience.

Research Instruments

Textbook Review Reports

Within the scope of the research, textbook reviews were used to reveal the experiences and evaluations of pre-service primary school teachers about gender roles in texts and visuals in primary school science textbooks. Pre-service primary school teachers reported their findings on the distribution of gender roles in primary school science textbooks. The researcher made no restrictions in the creation of these reports. The pre-service teachers were asked to examine and interpret all situations that could constitute an "inequality" toward gender equality. Thus, this study aimed to determine in which themes the pre-service teachers' evaluations of the concept of gender equality and the tendencies of these evaluations were concentrated.

Semi-structured Interview Form

Another data collection tool used in the study was the semi-structured interview. The questions asked in the interview aimed at revealing the experiences of pre-service teachers in the process of examining primary school

science textbooks and their thoughts about them. The interview form was analyzed by three experts from the fields of science education, classroom education, and psychology. The interview consisting of six questions was revised and finalized as a result of the evaluation of the field experts. For example, the question "Do you think there is an inequality in primary school science textbooks in terms of scientific activities and gender distribution? Can you explain?" was revised as "Do you think there is an inequality in primary school science textbooks in terms of science-specific activities and gender distribution? Can you explain?" This was in line with the opinions of the science education expert.

Research Process

The research process was conducted in three phases. The first phase included two weeks of theoretical and conceptual trainings and the introduction of science textbooks. The second phase was a three-week process in which pre-service teachers prepared their review and evaluation reports. In the third phase, the pre-service teachers were interviewed and their evaluation reports were analyzed. During the first stage, the MoNE guidelines (2022), which include methods to follow in the examination of textbooks, educational tools, and their electronic content, were introduced to the pre-service primary school teachers taking the four-hour Primary School Textbook Review course in. In this context, four basic criteria in the guide were evaluated and discussed. These included "compliance with the Constitution and legislation," "scientific competence," "being capable of meeting the acquisitions within the scope of the education and training program and planning the visuals and content design in a way to support learning," and "being suitable for the developmental characteristics of the student."

In regard to evaluation criteria in the examination to be made in terms of conformity with the Constitution and legislation, MoNE guidelines (2022) indicated:

> "The principle of social equality must be observed in the processing of subjects or examples, in the description of people and in the presentation of events."
>
> "...it should be prepared with an approach that supports fundamental human rights and freedoms and rejects all forms of discrimination by observing the principle of equality."

Discussions on the criteria were deepened. Subsequently, the 3rd and 4th grade science textbooks of MEB, ATA and Ipek Yolu Publishing Houses, which were prepared under the supervision of MEB, were introduced. In the second stage, pre-service teachers were asked to examine the texts and visuals of the textbooks of two different publishers from each grade level. Thus, each pre-service teacher analyzed four different books. The pre-service teachers were asked to report their analyses and findings in the context of gender equality. The researcher did not set any criteria in the creation of these reports and pre-service teachers' reports were preferred to be unstructured. Student teachers were asked to examine all situations that could create an "inequality" towards gender. Thus, it was also aimed to determine which themes they felt determined the concept of gender equality and where these were concentrated. In the last stage of the research process, the reports based on the analyses were examined and the incomprehensible statements or issues were corrected by interviewing the relevant pre-service teacher. Next, interviews were conducted with each pre-service teacher, each lasting from 15 to 20 minutes. When comments were

unclear or the interviewee moved away from the focus topic, the researcher led the process by using guiding statements.

Data Analysis

Within the scope of the research, the textbook review reports and semi-structured interview forms prepared by pre-service teachers were analyzed using the content analysis method to reveal in detail the relationships between phenomena and concepts (Yıldırım & Şimsek, 2008). In this context, firstly, a content analysis form was created by the researcher for the content analysis of the textbook review reports. The relevant literature (Arslan-Özer et al., 2019; Ruiz-Cecilia et al., 2021; Law & Chan, 2004; Lee, 2018; Yang et al., 2014) was utilized to create the content analysis form. Apart from the criteria included in this form, a separate category was created for other determinations made by the pre-service teacher. However, in cases where there was no determination for the criterion, the form was excluded.

In the analysis of the semi-structured interview forms, first, all of the interviews were transferred to Microsoft Office Word and transcripts of the interview data of each pre-service teacher were prepared and examined in detail by the researcher. In this process, the researcher was accompanied by an expert classroom teacher with a master's degree in science education. Data obtained from both data collection tools were transferred to the coding scheme by considering similar and different situations in the content analysis form and interview transcripts. The data obtained from both data collection tools were read from beginning to end by the researcher and the expert classroom teacher, and the coding schemes were compared. In this comparison, categories and themes best representing the coding were created for similar coding. In cases where there were differences, these codes were re-read and recorded under the relevant categories by reaching a consensus (Miles & Huberman, 1994). In the coding scheme, teacher statements for the relevant codes were included in order to share them in the presentation of the findings. In fact, in the phenomenological design, the researcher analyzed important meanings and sentences through the text obtained from the interviews, and emphasized the meanings of experiences according to individuals by supporting the analysis with quotations (Çapar & Ceylan, 2022).

Ethics and Credibility

Approval, dated May 23, 2023 and numbered E.520593, was obtained from the Scientific Ethics Evaluation Board of Selcuk University Faculty of Education in order to conduct the research. Within the scope of ethical principles, code names were given as PT1, PT2, T3... PT10 in order to maintain participant anonymity, and these code names were used in the entire reporting process of the study.

The equivalent of internal validity in the positivist paradigm in qualitative research is credibility (Merriam & Tisdell, 2015). Credibility is a process that provides important evidence that valid and reliable results are obtained in qualitative research (Glesne, 2012), and, in this study, evidence of the measures taken was presented. The researcher first reviewed the relevant literature in the development of both the content analysis form used in the evaluation of the textbook review report and the semi-structured interview form, thus aiming to provide a reference point for the reader (Yin, 2009) by preparing evaluation tools that included previously defined concepts applied in the literature.

The researcher avoided in-depth discussions and used objective statements in the introduction of concepts and documents related to gender inequality, social stereotypes, and gender roles in order to avoid influencing the participants (Guba, 1981).

Another measure taken to increase the credibility of the research was data triangulation. Triangulation is the use of different methods and data sources together to cross-check data and interpretations (Denzin & Lincoln, 2011). This was aimed at clarifying and verifying the data obtained from the textbook review report prepared by the pre-service teachers through interviews. In order to support participant honesty (Arastaman et al., 2018), a voluntary participation form was distributed to ten female pre-service teachers taking the Primary School Textbook Review course and their consent was obtained for participation in the study. The participants were informed about all the processes of the research before the interviews and it was stated that they had the right to withdraw from the research at any time. To further ensure trustworthiness of the research, inter-coder reliability was employed. In this context, the researcher opened the data to the supervision of a colleague (a field expert in classroom education) who was not involved in the research and received support during the coding process (Lincoln & Guba, 1986). Miles and Huberman (1994) state that definitions become clearer when researchers code using the same dataset. During the coding process, the researcher joined a classroom education field expert from time to time to discuss the similarities and differences of codes, categories, and themes. For this study, the percentage of agreement between the coders was calculated (88%). Re-evaluations were made for cases in which consensus was needed.

Results

In this section, textbook review reports and semi-structured interview forms were analyzed in order to reveal the experiences of pre-service primary school teachers regarding gender equality in primary school science textbooks and to determine the tendencies of their evaluations; the findings obtained in line with these data were presented. Based on the codes and categories obtained from data analysis, the following five main themes were reached: gender distributions, gender roles and stereotypes, the role of the teacher, the role of textbooks, and science textbook evaluation tendencies.

Under the theme *gender distribution*, pre-service teachers' findings were evaluated in two categories, i.e., the number of women/men in the visuals and in-text content in the textbooks and the gender distribution of children. The pre-service teachers found that the proportion of women and men in primary school science textbooks was close to each other and that there was a reasonable balance in the number of boys and girls. However, they also reported that in some written texts and some visuals, they came across situations where the number of boys and girls were not balanced. Some statements from pre-service teachers' reports and interviews related to this category are given below.

> *There is a reasonable balance in the visuals in terms of the number of male and female students.* (PT7, Textbook Review Report)

According to the general evaluation of the books, there is no gap between the number of girls and boys. However, on some pages there are sometimes only male figures and their actions. (PT10, Textbook Review Report)

The visuals used in the textbook review report of PT7, respectively, are given below.

Figure 1. Third grade science textbook MEB Publications

Although attention is paid to the ratio of the number of men and women in the visuals, the roles assigned to them in the texts of the visuals are meaningful. For example, in the image below, children go on a picnic with their teachers. The mothers are the ones accompanying the children. The teacher is male. Murat is picking flowers for his mother and the children are eating the food prepared by their mothers. (PT3, Textbook Review Report)

Murat, sınıf arkadaşları ve öğretmeniyle pikniğe gitti. Gittikleri yer çok güzeldi. Renk renk çiçekler vardı. Her yerden kuş sesleri geliyordu. Sanki kuşlar şarkı söylüyordu.

Murat, gördüğü rengârenk çiçeklerden annesine bir demet hazırlamak istedi. Ancak çiçekleri toplarken eline diken battı. Murat'ın eli acımıştı. Ama bu acı kısa sürede geçti. Topladığı çiçekleri güzel bir demet yaptı ve kokladı. "Bu çiçekler çok güzel kokuyor." dedi.

Murat ve arkadaşları acıkmışlardı. Annelerinin onlar için hazırladığı yiyecekleri yemeye başladılar. Murat, annesinin yaptığı kurabiyeyi çok beğenerek yedi.

Figure 2. Third grade science textbook MEB Publications

There are three categories under the theme *gender roles and stereotypes.* These are: roles attributed to women and men, stereotypes formed by roles, and gender inequality. In their textbook reviews, pre-service teachers reported that the roles attributed to men and women in primary school science textbooks were different, that these roles were not equally distributed, and that stereotypes were included in this direction. They found that the roles attributed to women were mostly focused on home and childcare, while the roles attributed to men were mostly focused on

actions requiring power and work outside the home. However, it was also reported that there are male figures who do the work at home, albeit to a lesser extent. In addition, pre-service teachers stated that they came across remarkable findings regarding the role distribution of girls and boys. Based on the pre-service teachers' reports, the girl child is with the mother and helps her, especially in household chores. Based on the roles represented by women and girls, the stereotype that women are only child-bearers and caregivers is felt in society. Although there were roles in which women and girls were more powerful and represented in every field, but these were not sufficient. In addition, pre-service teachers identified and expressed that the roles of women and men representing professions were not equally distributed and that some professions were specific to a certain gender. Based on these determinations and expressions, the professional role of teaching was attributed to women in the books; however, scientists were represented by men. Individuals who drove vehicles and engaged in sports, such as soccer, basketball, and tennis were primarily men. There were a few examples of female engineers and doctors. Interviews with pre-service teachers supported the points they identified in their reports. In fact, pre-service teachers stated that they saw and experienced these stereotypes and gender roles in their real lives. Excerpts from the determinations and opinions of pre-service teachers regarding the theme of gender roles and stereotypes and subcategories are presented below.

> *There is a story of electricity around us in the kitchen in the 4th grade electric vehicles unit. Again, the role of a kitchen worker is assigned to women and the girl child. Moreover, when I examine the text related to the picture, the girl is taught how to prepare the dinner table. The stereotype of women being responsible for housework is passed on to the next generation* (PT2, Textbook Review Report)

> *From past to present, it seems as if the advantages provided by electric vehicles have always made women's work easier. The woman uses the mixer; the woman washes the laundry that she used to wash by hand, but now she washes it with a machine. On the other hand, men play soccer, drive the car, and do scientific research.* (PT5, Textbook Review Report)

> *Although it is found in all publications, there is a serious deficiency in terms of gender equality in Anka Publications 3rd grade science textbook. All the work related to home and children has almost become a woman's duty.* (PT7, Textbook Review Report)

> *When I examined the gender roles in science textbooks, some things did not surprise me at all. Because as a woman, I am already exposed to these stereotypes in the society. We need to change this perception.* (PT1, Interview).

The visuals and texts of the visuals used in the textbook review report of PT5 and PT3, respectively, are given below.

Figure 3. Third grade science textbook (MoNE Publications)

Figure 4. Fourth grade science textbook (ATA Publications) and third grade science textbook (ANKA Publications)

In the theme of *teacher roles*, the determinations and opinions of pre-service teachers are gathered in two different categories. These are the role of the teacher in ensuring gender equality and the correct use of textbooks in terms of gender equality. In both the reports and the interviews, pre-service teachers stated that the teacher has an important mission in ensuring gender equality. They stated that teachers have an important effect on breaking down the stereotypes identified in textbooks, preventing the formation of false stereotypes, ensuring the representation of girls in all areas of society, and adopting gender equality. In addition, another issue reported by pre-service teachers is that textbooks should be used correctly in terms of gender equality and that the teacher has a significant role in this regard. In the interviews, the effective role of the teacher in terms of using textbooks correctly in the context of gender equality was also expressed. Excerpts from the determinations and opinions of pre-service teachers regarding the theme of teacher roles and subcategories are given below.

> *...For example, in the book there is a professor in all the speech bubbles from beginning to end. And this professor is an old man. The perception this creates in the child is that the professor is old, he is a man, and*

science is a male pursuit. The teacher should take measures to eliminate such negative perceptions in the textbook. Therefore, the teacher has a serious responsibility. (PT8, Textbook Review Report)

When I analyze the textbooks, I can say that gender equality is not fully reflected. Considering that the people who prepare the textbooks are teachers, we have a big role in the preparation and implementation of these books. The most important model for the child in the classroom is the teacher. Therefore, the only person who can emphasize gender equality and minimize stereotypes in textbooks is the teacher. (PT6, Interview)

If I hadn't done research on this subject, I probably wouldn't have noticed this sexist attitude in the books when I started working. Therefore, the teacher's having a point of view is an important factor in eliminating negative elements in books and creating an egalitarian atmosphere between girls and boys. (PT8, Interview)

Another theme of the study, *gender equality in textbooks*, has three categories. These are the role of textbooks in reflecting gender equality, the need for revision of textbooks in the context of gender roles, and the training of textbook commissions on gender roles. In their reports on the examination of primary school science textbooks and in the interviews, pre-service teachers mentioned that primary school textbooks were an important factor in the adoption of gender roles by primary school students. The future teachers stated that there were more pictures than text in primary school textbooks and that gender roles in these pictures may be more effective than text content due to the pedagogical characteristics of children. In addition, they emphasized that the examples in the pictures that do not comply with gender equality should be completely removed from the textbooks and that the commissions preparing the textbooks and teachers should receive training in the context of gender equality. Excerpts from the determinations and opinions of pre-service teachers regarding the theme of gender equality in textbooks and subcategories are given below.

When a student in the 3rd grade of primary school opens a book, he first looks at the pictures, not the text. And the picture he sees gives him a message, and I think this message is more permanent than the content of the text. For this reason, if a child sees a woman rolling out dough, preparing food for her child, or sweeping the house, she will take these as her duties over time. For this reason, I think textbooks should be prepared according to very sensitive criteria. (PT1, Interview)

I can say that I encountered more negative examples especially in 3rd grade textbooks than in 4th grade textbooks. But what difference does more or less make? There should not be even a single text or picture that contains gender inequality in textbooks. For this reason, I think the textbooks need to be revised from scratch. (PT9, Interview)

Textbooks show that there are commissions that prepared the book. Publishing houses and communication channels are also indicated. The books are approved by the Ministry of National Education. However, some content and illustrations may need to be objected to. It can be said that the knowledge, awareness and sensitivity of the educators in the commission should be increased, especially on gender equality. (PT7, Textbook Review Report).

The theme of *science textbook evaluation tendencies* consists of three categories: general evaluation tendencies, science course-specific evaluation tendencies and individual-specific tendencies. It was determined that pre-service teachers used general evaluation patterns in examining science textbooks. In fact, although the pre-service teachers were not given any evaluation criteria at the beginning, they recognized gender equality by using basic evaluation criteria such as gender distributions, gender roles, and stereotypes. However, it was observed that the only issues specific to the science course that pre-service teachers addressed in their reports were scientists and gender roles. It was determined that pre-service teachers did not consider issues such as STEM professions, scientific research, and actions in laboratory environments as evaluation criteria in terms of gender roles in analyzing science textbooks. In addition, pre-service teachers also had evaluations that were not included in the content analysis form, such as evaluating book commissions, MoNE textbook control mechanisms, and MoNE policies.

> *After the sexist elements I detected in the science textbooks, I was curious about the other textbooks. When I examined them, I saw that there were a lot of stereotypes in other branch textbooks. MoNE has a lot of work to do, because it is the institution that prepares and supervises the books.* (PT10, Interview)

> *Growth and development is given through a female element. Instead, the developmental stages of both male and female individuals could have been presented together. In book preparation commissions, the distribution of male and female commission members should be balanced. These findings suggest that there may be more male members in the commissions.* (PT2, Textbook Review Report)

> *The published Textbook Review Guide has been prepared in detail, but the textbooks should be made more compliant with this guide in terms of gender equality.* (PT4, Interview)

Discussion, Conclusion and Suggestions

Currently, we do not yet know what kind of effects textbooks that contain gender biases will have on children. However, we can observe in real life that the stereotypes in textbooks overlap with children's attitudes and behaviors in daily life. The starting point of the study was whether teachers, who are the active implementers of textbooks in schools, are aware of this gender inequality and how they evaluate stereotypes. In this vein, 3rd and 4th grade science textbooks were examined in terms of gender roles by female pre-service primary school teachers, aiming to reveal the experiences and textbook evaluation ideas based on their examinations. The results obtained in this context were discussed in line with the themes.

First, pre-service teachers determined that the number of women and men and the number of girls and boys were in a reasonable balance in both written texts and visuals in science textbooks. However, when considered on the basis of units and subjects, they also stated that there were situations where this balance was not observed. In studies examining textbooks such as Turkish, mathematics, life sciences, social studies, and life sciences in terms of gender factors, it was shown that the number of male figures was higher than the number of female figures (Arslan Özer et al., 2019; Özkan, 2013; This article should be an added reference; Kükrer & Kıbrıs, 2017). Accordingly, it can be seen that primary school science textbooks are better than other textbooks in terms of the balance in the number of

men and women. Since there is no study in Turkey in which science textbooks have been analyzed through gender equality, the determination made by pre-service primary school teachers is unique.

Although the distribution of the number of male-female or female-boy or girl-boy children is balanced, according to the results of the study, the roles attributed to the genders in primary school science textbooks are not equally distributed and there are stereotypes. Roles attributed to women are mostly related to home and childcare, while those attributed to men are related to life outside the home and actions that require power. However, there are men who do the housework or roles in which women and girls are more powerful and these are represented in all areas, but this is still not efficient. It was also evaluated that the roles attributed to girls and boys are not equally distributed. The same inequality applies to the representation of professions. The results of previous studies on stereotypical roles in textbooks of different disciplines are consistent with the results of this study (Atay & Danju, 2012; Başaran, 2019; Bilgin, 2019; Chisholm, 2018; Gümüşoğlu, 2008; Şafak et al., 2006).

Another issue that pre-service primary school teachers evaluated in primary school science textbooks was the relationship between scientists and gender roles. Along this line, they determined that all the scientists in the textbooks were male with the exception of Marie Curie. When the literature is examined, all of the examples of scientists in social studies textbooks are male (Demircioglu & Özalp, 2023; Dündar, 2021). Although there are many women scientists working in natural sciences, the fact that they are not included in the textbooks is seen as an important deficiency and inequality. In addition, it is thought that the inclusion of women scientists in books is important in terms of being role models for girls, because gender roles and stereotypes have a defining and prescriptive effect on an individual's behavior (Prentice & Carranza, 2002). In addition, according to the evaluations of pre-service teachers, individuals who drive vehicles and engage in sports, such as football, basketball, and tennis are mostly male. There were a few examples of female engineers. UNESCO's report titled *Cracking the Code: Education of Girls' and Women in Science, Technology, Engineering, Mathematics (STEM)* states, "Eliminating gender inequality in STEM fields is important for human rights, inclusion and sustainable development" (UNESCO, 2017). In addition, the pre-service teachers stated that these stereotypes and gender roles they encountered in the books were also seen and experienced in their real lives as women. National data also support this basic finding. When the basic labor force indicators produced by the Turkish Statistical Institute (TurkStat) are examined in terms of gender distribution, it is seen that the labor force participation rate of women was 34.3% in 2019, while the labor force participation rate of men was 71.1%. According to 2019 data, the majority of women (54.4%) stated that they do not participate in the labor force, because they are busy with housework (Erikli, 2020).

Another result obtained from the pre-service teachers' evaluations is that teachers play a part in establishing gender roles on the basis of an egalitarian understanding. As a result of their experiences, pre-service teachers believe that teachers have an important mission in preventing gender inequalities and breaking down stereotypes. De Kraker-Pauw et al. (2016) state that teachers' gender role beliefs about boys' and girls' school experiences can perpetuate existing and possibly undesirable situations related to children's dispositions. Law and Chan (2004) indicate that teachers' knowledge and perception of gender stereotypes in children's textbooks is an important factor. Thus, teachers' awareness and perception of stereotypes in elementary school science textbooks is a significant issue

in eliminating these stereotypes. Given this research, pre-service teachers realized that textbooks were an important tool in reflecting gender equality. They stated that there are more pictures than texts in primary school texts, and gender roles in these pictures can be more effective than text content due to the pedagogical characteristics of children. In addition, they emphasized that the examples that do not comply with gender equality, especially in the pictures, should be completely removed from the textbooks and that the commissions preparing the textbooks and teachers should receive training in the context of gender equality. Based on these findings and evaluations, stereotypes in gender roles in textbooks do exits, and in order to eliminate and prevent these, pre-service teachers suggested that conscientious educational policies should be followed. Textbooks play a key role in shaping students' images of the social world and its actors and reinforcing gender-based cultural roles in social life (Aragonés-González et al., 2020; MacDonald, 1976). Therefore, this experience of pre-service primary school teachers regarding the gender factor in textbooks is a targeted situation within the scope of the research.

Another research problem was to determine the pre-service teachers' tendencies towards evaluating primary school science textbooks in terms of gender equality. Accordingly, it was observed that pre-service primary school teachers showed more general and basic evaluation tendencies in analyzing textbooks in terms of gender equality. Moreover, in many studies examining textbooks in terms of gender equality, basic criteria such as gender distribution, stereotypes, actions attributed to genders, and occupations have been used (Arslan-Özer et al., 2019; Ruiz-Cecilia et al., 2021; Law & Chan, 2004; Lee, 2018). It was determined that pre-service teachers did not consider issues such as STEM professions, scientific research, and actions in laboratory environments as evaluation criteria in terms of gender roles when analyzing science textbooks. Considering that each discipline has its own unique nature, it is thought that the knowledge and skills of pre-service primary school teachers regarding the nature of science courses, field-specific skills, and the curriculum structure should be improved. In addition, teachers' beliefs are important in raising girls in science and increasing their representation.

In summary, the results of this study, in which pre-service primary school teachers evaluated primary school science textbooks, show that there are a large number of examples in primary school science textbooks that do not comply with the principle of gender equality. Textbooks, which are provided free of charge by the state, are a valuable educational material for children who do not have access to school or who have limited resources. Textbooks are an important aspect leading to gender equality in education. In fact, textbooks take up almost 80% of classroom time and can lead to lower achievement of girls, especially in poor schools (Blumberg, 2009). Based on the results of the current study, it is recommended that all negative examples be removed from primary school science textbooks on the basis of the principle of gender equality. In addition, it should be recommended that the development and supervision mechanisms of textbooks should be carried out sensitively, and educational policies in this area should be carefully executed. Again, based on the research findings, there is need for additional research in different disciplines to increase the awareness and experience of teachers, who are the effective implementers of textbooks, in terms of gender equality. The intellectual experience gained by pre-service teachers will develop and play an effective role in increasing the representation of girls in society in the future.

Ethics

This research was conducted with the permission of the Scientific Ethics Evaluation Board of Selcuk University Faculty of Education dated May 23, 2023 and numbered E.520593. The participants of the study signed the consent form for voluntary participation in the research.

Funding

No scholarships or payments have been received from any institution for this article.

References

Abd-El-Khalick, F., Myers, J. Y., Summers, R., Brunner, J., Waight, N., Wahbeh, N., ... & Belarmino, J. (2017). A longitudinal analysis of the extent and manner of representations of nature of science in US high school biology and physics textbooks. *Journal of Research in Science Teaching*, *54*(1), 82-120. https://doi.org/10.1002/tea.21339

Akerson, V. L., Buzzelli, C. A., & Donnelly, L. A. (2008). Early childhood teachers' views of nature of science: The influence of intellectual levels, cultural values, and explicit reflective teaching. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, *45*(6), 748-770. https://doi.org/10.1002/tea.20236

Anderson, D. A., & Hamilton, M. (2005). Gender role stereotyping of parents in children's picture books: The invisible father. *Sex roles*, *52*, 145-151. https://doi.org/ 10.1007/s11199-005-1290-8

Aragonés-González, M., Rosser-Limiñana, A., & Gil-González, D. (2020). Coeducation and gender equality in education systems: A scoping review. *Children and youth services review*, *111*, 104837. https://doi.org/10.1016/j.childyouth.2020.104837

Arastaman, G., Fidan, İ. Ö., & Fidan, T. (2018). Nitel araştırmada geçerlik ve güvenirlik: Kuramsal bir inceleme. [Validity and Reliability In Qualitative Research: A Theoretical Analysis]. *YYU Journal of Education Faculty*, *15*(1), 37-75. http://dx.doi.org/10.23891/efdyyu.2018.61

Arslan Ozer, D., Karatas, Z. & Ergun, O. R. (2019). Analysis of Gender Roles in Primary School (1st to 4th Grade) Turkish Textbooks. *Eurasian Journal of Educational Research, 19* (79), 1-20. https://doi.org/10.14689/ejer.2019.79.1

Atay, M., & Danju, I. (2012). Analysis of 1st grade and 5th grade textbooks and primary school student's views about personal traits in gender role in society. *Procedia-Social and Behavioral Sciences*, *47*, 64-73. https://doi.org/10.1016/j.sbspro.2012.06.614

Baker, C., Wuest, J., & Stern, P. N. (1992). Method slurring: The grounded theory/phenomenology example. *Journal of advanced nursing*, *17*(11), 1355-1360. https://doi.org/10.1111/j.1365-2648.1992.tb01859.x

Bakırcı, H. & Ocsoy, K. (2017). An Investigation of the Activities in Science Textbooks in terms of the Concept of Entrepreneurship. *Adıyaman University Journal of Educational Sciences, 7* (2), 256-276. https://doi.org/10.17984/adyuebd.322438

Başaran, M. (2019). *Sosyal bilgiler öğretim programı ve ders kitaplarında toplumsal cinsiyet eşitliği eğitimi* [*Gender Equality Education in Social Studies Curriculum and Textbooks*]. [Doctoral Dissertation]. Necmettin Erbakan University. https://www.proquest.com/docview/2609708658?pq-origsite=gscholar&fromopenview=true

Bilgin, S. (2019). *Ortaokul sosyal bilgiler ders kitaplarında toplumsal cinsiyet.* [*Gender ın secondary schools socıal studıes textbook*]. [Master's thesis].Ondokuz Mayıs Üniversitesi. http://libra.omu.edu.tr/tezler/127328.pdf

Blumberg, R.L. (2008). The invisible obstacle to educational equality: gender bias in textbooks. *Prospects 38*, 345–361 https://doi.org/10.1007/s11125-009-9086-1

Brito, A., Rodriguez, M. A., & Niaz, M. (2005). A reconstruction of development of the periodic table based on history and philosophy of science and its implications for general chemistry textbooks. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, *42*(1), 84-111. https://doi.org/10.1002/tea.20044

Chick, K.A. (2006). Gender balance in k-12 american history textbooks. *Social Studies Research and Practice*, *1*(3), pp. 284-290. https://doi.org/10.1108/SSRP-03-2006-B0001

Chisholm, L. (2018). Representations of Class, Race, and Gender in Textbooks. In: Fuchs, E., Bock, A. (eds) *The Palgrave Handbook of Textbook Studies.* Palgrave Macmillan, New York. https://doi.org/10.1057/978-1-137-53142-1_16

Chua, J. X., Tan, A. L., & Ramnarain, U. (2019). Representation of NOS aspects across chapters in Singapore Grade 9 and 10 Biology textbooks: insights for improving NOS representation. *Research in Science & Technological Education*, *37*(3), 259-278. https://doi.org/10.1080/02635143.2018.1542377

Creswell, J. (2013). Qualitative inquiry and research design: choosing among five approaches. Thousand Oaks, CA: Sage.

Çapar, M. C., & Ceylan, M. (2022). Durum çalışması ve olgubilim desenlerinin karşılaştırılması. [A Comparison of Case Study and Phenomenology Design]. *Anadolu University Journal of Social Sciences*, *22* (Özel Sayı 2), 295-312. https://doi.org/10.18037/ausbd.1227359

Çatalcalı Soyer, A. (2009). Okul Öncesi Dönem Çocuk Hikâye Kitapları: Stereotipler ve Kimlikler [*Storybooks of the Pre- School Kids: Sterotypes and Identities*]. *Mehmet Akif Ersoy University Journal of Social Sciences Institute*, *1*(1), 13-27. https://dergipark.org.tr/en/pub/makusobed/issue/19433/206637

De Kraker-Pauw, E., Van Wesel, F., Verwijmeren, T., Denessen, E., & Krabbendam, L. (2016). Are teacher beliefs gender-related?. *Learning and Individual Differences*, *51*, 333-340. https://doi.org/10.1016/j.lindif.2016.08.040

Delamont, S. (2012). *Sex roles and the school*. Routledge .

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage handbook of qualitative research*. Sage.

Demircioğlu, E., & Özalp, M. T. (2022). Representation of female scientists in social studies textbooks. *Educational Academic Research*, 47, 80-92. https://doi.org/10.5152/AUJKKEF.2022.991680

Dökmen, Z. Y. (2015). *Toplumsal cinsiyet: Sosyal psikolojik açıklamalar*. [*Gender: social psychological explanations*]. (6. Baskı), Remzi Kitabevi, İstanbul.

Duruk, Ü. & Akgün, A. (2020). Bilimin Doğası Bileşenlerinin Fen Bilimleri Ders Kitaplarında Temsil Edilme Durumu. *Amasya Üniversitesi Eğitim Fakültesi Dergisi*, *9* (2), 196-229. https://dergipark.org.tr/en/pub/amauefd/issue/58078/721309

Dündar, S. (2021). *Ortaokul sosyal bilgiler ders kitaplarında toplumsal cinsiyet. [Gender ın secondary schools socıal studıes textbook]*. [Master's thesis]. Aydın Adnan Menderes Üniversitesi. http://adudspace.adu.edu.tr:8080/jspui/bitstream/11607/4519/1/3153.pdf

Evans, L., Davies, K. No Sissy Boys Here: A Content Analysis of the Representation of Masculinity in Elementary School Reading Textbooks. *Sex Roles 42*, 255–270 (2000). https://doi.org/10.1023/A:1007043323906

Erikli, S. (2020). Çalışma yaşamında toplumsal cinsiyet ayrımcılığının görünümü. [Gender Discrimination in Working Life]. *Hacettepe University Journal of Social Sciences, 2* (1), 39-60. https://dergipark.org.tr/en/pub/husbdergi/issue/52731/673563

Eroğlu Doğan, E., Ekinci, R. & Doğan, D. (2020). Fen bilimleri ders kitapları ile ilgili yapılan çalışmaların incelenmesi [Examination of the studies related to science textbooks]. *Journal of the Human and Social Science Researches, 9* (5), 3479-3499. https://doi.org/10.15869/itobiad.734864

Freire, P., & Macedo, D. (1998). *Okuryazarlık*, çev. Ayhan, S., İmge, Ankara

Glesne, C. (2012). Nitel arastirmaya giris. *Trans. Eds.: Ali Ersoy, PelinYalcinoglu). 4th Edition. Ankara: Ani Publishing*.

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Ectj*, *29*(2), 75-91.

Gümüşoğlu, F. (2008). Ders kitaplarında toplumsal cinsiyet. [Gender in school text books]. *Toplum ve Demokrasi Dergisi*, *2*(4), 39-50. https://dergipark.org.tr/en/pub/toplumdd/issue/22728/242599

Güvenli, G., & Tanrıöver, H. U. (2009). Ders kitaplarında toplumsal cinsiyet. *Tüzün (Editör). Ders kitaplarında İnsan hakları II tarama sonuçları. İstanbul: Tarih Vakfı*, 97-114.

Groenewald, T. (2004). A Phenomenological Research Design Illustrated. *International Journal of Qualitative Methods, 3*(1), 42-55. https://doi.org/10.1177/160940690400300104

Hand, S., Rice, L. & Greenlee, E. (2017). Exploring teachers' and students' gender role bias and students' confidence in STEM fields. *Soc Psychol Educ* 20, 929–945. https://doi.org/10.1007/s11218-017-9408-8

Helvacıoğlu, F. (1996). *Ders kitaplarında cinsiyetçilik [Sexism in textbooks]*. İstanbul: Kaynak Yayınları.

Jackson, C., & Warin, J. (2000). The importance of gender as an aspect of identity at key transition points in compulsory education. *British educational research journal*, *26*(3), 375-391. https://doi.org/10.1080/713651558

Jassey, I. A. (1998). Gender in elementary school texts. *Japan Quarterly*, *45*(1), 87. https://www.proquest.com/openview/cec7f9ac7196dafe3cc7f9f3051fe208/1?pq-origsite=gscholar&cbl=48231

Karamustafaoğlu, O., & Üstün, A. (2004). Yürürlükteki fen bilgisi 7. sınıf ders kitabının incelenmesi. *XIII. Ulusal Eğitim Bilimleri Kurultayı*, 6-9.

Kükrer, M. & Kıbrıs, İ. (2017). CEDAW öncesi ve sonrası ortaokul türkçe ders kitaplarında yer alan toplumsal cinsiyet eşitliği faktörünün değerlendirilmesi [The evaluatıon of socıal gender equalıty factor ın the secondary

school turkısh textbooks before and after CEDAW]. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 17 (3), 1369-1383. http://dx.doi.org/10.17240/aibuefd.2017.17.31178-338836

Law, K. W. K., & Chan, A. H. (2004). Gender role stereotyping in Hong Kong's primary school Chinese language subject textbooks. *Asian journal of women's studies*, *10*(1), 49-69. https://doi.org/10.1080/12259276.2004.11665965

Lee, J. F., & Collins, P. (2009). Australian English-language textbooks: the gender issues. *Gender and education*, *21*(4), 353-370. https://doi.org/10.1080/09540250802392257

Lee, J. F. (2018). Gender representation in Japanese EFL textbooks–a corpus study. *Gender and Education*, *30*(3), 379-395. https://doi.org/10.1080/09540253.2016.1214690

Lincoln, Y. S., & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New directions for program evaluation*, *1986*(30), 73-84.

MacDonald, G. (1976), "The Politics of Educational Publishing," G. Whitty and M. Young (eds.), *Explorations in the Politics of School Knowledge*, Driffield: Nafferton Books: 145-169.

McDonald, C. V., & Abd-El-Khalick, F. (Eds.). (2017). *Representations of nature of science in school science textbooks: A global perspective*. Taylor & Francis.

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Miller, S. (2003). Analysis of phenomenological data generated with children as research participants. *Nurse researcher*, *10*(4). https://doi.org/10.7748/nr2003.07.10.4.68.c5908

Ministry of National Education [MoNE]. (2022). *Taslak Ders Kitabı ve Eğitim Araçları İle Bunlara Ait Elektronik İçeriklerin İncelenmesinde Değerlendirmeye Esas Olacak Kriterler ve Açıklamaları.* https://kitapinceleme.meb.gov.tr/De%C4%9Ferlendirmeye%20Esas%20Olacak%20Kriterler%20ve%20A%C3%A7%C4%B1klamalar%C4%B1.pdf

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. sage.

Misra, J., & Strader, E. (2013). Gender pay equity in advanced countries: The role of parenthood and policies. *Journal of International Affairs*, 27-41. https://www.jstor.org/stable/24461670

Moustakas, C. (1994). *Phenomenological research methods.* Thousand Oaks, CA: Sage.

Oakley, A. (Ed.). (2005). *The Ann Oakley reader: Gender, women and social science*. Policy Press.

Özdemir, E., & Karaboğa, A. B. (2019). Ortaokul matematik ders kitaplarında toplumsal cinsiyet [Gender in Secondary School Mathematics Textbooks]. *Mersin University Journal of the Faculty of Education*, *15*(3), 760-781. https://doi.org/10.17860/mersinefd.580405

Özkan, R. (2013). İlköğretim ders kitaplarında kadın figürü. [The figure of woman in primary education textbooks] *The Journal of Academic Social Science Studies, 6*(5), 617-631. http://dx.doi.org/10.9761/JASSS1567

Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. *Psychology of women quarterly*, *26*(4), 269-281. https://doi.org/10.1111/1471-6402.t01-1-00066

Ruiz-Cecilia, R., Guijarro-Ojeda, J. R., & Marín-Macías, C. (2020). Analysis of heteronormativity and gender roles in EFL textbooks. *Sustainability*, *13*(1), 220. https://doi.org/10.3390/su13010220

Sarıtaş, E., & Şahin, Ü. (2018). Hayat bilgisi ders kitaplarında toplumsal cinsiyet rolleri üzerine bir inceleme [An examınatıon on gender roles ın socıal scıences course books]. *Mehmet Akif Ersoy University Journal of Education Faculty*, (48), 463-477. https://doi.org/10.21764/maeuefd.351555

Sönmez, K., & Dikmenli, Y. (2021). İlkokul sosyal bilgiler ders kitabının toplumsal cinsiyet açısından incelenmesi [Analysis of primary school social studies textbook in terms of gender]. *Cumhuriyet International Journal of Education, 10*(1), 434-458. https://doi.org/10.30703/cije.732000

Starks H, Brown., & Trinidad S. (2007). Choose Your Method: A Comparison of Phenomenology, Discourse Analysis, and Grounded Theory. *Qualitative Health Research*, *17*(10), 1372-1380. https://doi.org/10.1177/1049732307307031

Şafak, Ş., Çopur, Z., & Özkan, M. (2006). Çocukların evle ilgili faaliyetlere harcadıkları zamanın incelenmesi. *Hacettepe Üniversitesi Sosyolojik Araştırmalar E-Dergisi*.

Taylor, F. (2003). Content analysis and gender stereotypes in children's books. *Teaching sociology*, 300-311. https://doi.org/10.2307/3211327

United Nations Educational, Scientific and Cultural Organization [UNESCO]. (2017). *Cracking the code: Education of girls' and women in science, technology, engineering, mathematics (STEM).* (978-92-3-100233-5). https://doi.org/10.54675/QYHK2407

UNESCO (2021). *Küresel öncelik olarak toplumsal cinsiyet eşitliği*. https://www.unesco.org.tr/Pages/42/215/Toplumsal-Cinsiyet-E%C5%9Fitli%C4%9Fi-

Uçar, C. & Somuncuoğlu Özerbaş, D. (2017). Evaluation of the secondary school 5th grade science textbooks according to visual design principles. *Kastamonu Education Journal, 25* (4), 1373-1388. https://dergipark.org.tr/en/pub/kefdergi/issue/30766/332473

Yang, T., & Aldrich, H. E. (2014). Who's the Boss? Explaining Gender Inequality in Entrepreneurial Teams. *American Sociological Review, 79*(2), 303–327. https://doi.org/10.1177/0003122414524207

Yıldız, Y. N., Tabaru, G. (2017). Fen bilimleri 3 ve 4. sınıf öğretim programı ile ders kitaplarının yer temelli eğitim açısından incelenmesi [Evaluatıon of 3rd and 4th grade course books and scıence currıculum ın terms of place-

based educatıon]. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 17*(3), 1584-1605. https://doi.org/10.17240/aibuefd.2017.17.31178-338849

Yıldırım, A., ve Şimşek, H. (2008). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri (7.baskı)*. Seçkin.

Yin, R.K. (2009). *Case study research: Design and methods (4th ed)*. Thousand Oaks, CA: Sage

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: August 17, 2023
Accepted: September 24, 2023
http://dergipark.org.tr/rep

e-ISSN: 2602-3733

September 2023 ◆ 7(2) ◆ 328-348

Research Article

https://doi.org/10.54535/rep.1343894

Development of Parent Educational Philosophy Tendency Scale: A Validity and Reliability Study

Ercan Yılmaz[1]
Necmettin Erbakan University

Rüştü Yıldırım[2]
Ministry of National Education

Abstract

The present study endeavors to formulate a measurement tool that is both valid and reliable, intended to assess the educational philosophy tendencies of parents. The sampling process was executed through the utilization of multistage sampling. 1,330 parents formed the sample of the scale development process. The sample was randomly divided into two, half for exploratory factor analysis and half for confirmatory factor analysis. 65.7% of the participants are female and 34.3% are male. 41.2% of the participants are primary school parents, 30.6% are secondary school parents and 28.2% are high school parents. The Parent Educational Philosophy Tendency Scale's construct validity was first tested with exploratory factor analysis and then confirmatory factor analysis was performed, and findings related to these analyses are presented respectively. As a result of the exploratory factor analysis, the scale consisted of 19 items and three sub-dimensions, and these dimensions are named individualist, subject-centered, and socialist in line with the literature. The three-factor structure of the scale was confirmed by confirmatory factor analysis. In addition, the differences between the averages of the 27% lower and upper groups in the scale items were significant. According to the reliability analysis, the Cronbach's alpha internal consistency coefficient values of the scale are .896 for the "individualist" sub-dimension, .781 for the "socialist" sub-dimension, and .717 for the "subject-centered" sub-dimension of the Parent Educational Philosophy Tendency Scale. The Parent Educational Philosophy Tendency Scale represents the perception of parents' philosophy of education. The internal consistency coefficients of the sub-dimensions of the Parent Educational Philosophy Tendency Scale were at a reasonable level. As a result, in the light of the analyses and expert opinions, the items of the scale could measure the intended quality and the structure to be measured, the construct validity was high and it performed stable measurements.

Key Words

Parent • Educational philosophy • Tendency scale

[1]Necmettin Erbakan University, Ahmet Keleşoğlu Faculty of Education, Konya, Türkiye. E-mail: ercanyilmaz70@gmail.com **ORCID:** 0000-0003-4702-1688
[2] **Correspondence to:** Ministry of Education, Konya, Türkiye. E-mail: rustuyildirim12@gmail.com **ORCID:** 0000-0003-3787-6551

Citation: Yılmaz, E. & Yıldırım, R. (2023). Development of Parent Educational Philosophy Tendency Scale: A validity and reliability study. *Research on Education and Psychology (REP), 7*(2), 328-348.

Introduction

Collaboration with education stakeholders is required to make the education process more qualified, and the most important of these stakeholders are parents. Clarke et al. (2009) emphasized the importance of the relationship with parents to increase success in education. Parents are the social institutions that are responsible for the education of the child from the first years of the students (Kaya & Gültekin, 2003). Collaborating with parents during the education process has positive reflections on the academic development of students (Gutman & Midgley, 2000; Anderson & Minke 2007). To cooperate with parents, their perspectives on education need to be understood. Parents' perspectives on education will determine the educational philosophy trends. In this respect, it is important to describe the educational philosophy tendencies of the parents. Measurement tools are necessary to identify and describe the educational philosophy tendencies of parents. These measurement tools will provide both the explanation of the educational philosophies of the parents and the relationship of these qualities with other variables in the context of causality. In this field, there are measurement tools that measure the educational philosophies of different groups. The 25-item Educational Beliefs Scale developed by Silvernail (1992) measures teachers' philosophy of education beliefs. The philosophical preference assessment scale developed by Çetin et al. (2012) is a two-factor scale. The Educational Philosophy Adoption Scale, which was developed by Ekiz (2005) to reveal the level of adopting educational philosophies of primary school teacher candidates, is a measurement tool that measures four educational philosophy trends. The Educational Beliefs Scale developed by Yılmaz et al. (2011) tries to determine the educational philosophies adopted by teachers. This scale measures teachers' educational beliefs in five sub-dimensions: progressivism, existentialism, reconstructionism, perennialism, and essentialism. The Scale for Determining Educational Philosophy Based on Adjective Pairs for Educators and Teachers, developed by Demir and Çeliköz (2023) to determine the educational philosophies of educators and teachers, is a seven-factor and 32-item scale. The scale named What is Your EP? developed by Jersin (1972) consists of 11 questions about essentialism, progressivism, and existentialism. The data collection tool developed by Jarrah et al. (2020) measures the tendency of progressivism education philosophy.

While there are scales to determine the educational philosophies of teachers and students in the literature, no data collection tool has been found to determine the educational philosophies of parents. This study aimed to develop a valid and reliable measurement tool to determine the educational philosophy tendencies of parents.

Literature Review

Educational philosophy is a discipline or systematic pattern of ideas and concepts that examine educational policies, practices, assumptions, beliefs, decisions, and criteria and check the consistency (Biçer et al. 2013). Educational philosophy is a set of ideas and beliefs that guide educational actions and provide a framework for thinking about educational problems (Kauchak & Eggen, 2011). Educational philosophy seeks and represents answers to questions about the purpose of the school, the role of a teacher, and what should be taught by what methods (Sadker & Zittleman, 2018). Educational philosophy is the most important component of the perception of the education and training process. Personal education philosophy is the ability to analyse personal beliefs, attitudes, and values related to education (Kagan, 1992; Pajares, 1992; Morine-Dershimer & Kent, 1999). Individuals may

have different philosophical views on education due to their different perceptions and assumptions about the nature of human beings, knowledge, and the existence of various elements (Ozmon & Carver, 1995).

Philosophy is a discipline based on asking questions and seeking answers to these questions. Philosophy of education is a process in which a person tries to find answers to some basic questions about education. Educational philosophy seeks answers to questions such as "What is education?", "What is the purpose of education?" and "What is the structure of human potential that needs to be developed through education?" (Young, 2007). With the answers to these questions, the person begins to develop beliefs about education, and his tendencies about the philosophy of education begin to form. The tendency is a state of inclination to love, want or do something or an inner impulse that directs people to certain things (Oxford, 2023). Educational philosophy tendency is the weighted perspective of the individual on education (Aytaç, 2020). In the process of seeking answers to basic questions about education, educational philosophy movements began to emerge. The main ones among these currents are perennialism, essentialism, progressivism, reconstructionism, and existentialism (Demirel, 2012; Ergün, 2009; Ornstein et al., 2016).

Perennialism

Perennialism is the oldest and most conservative educational philosophy, influenced by realism and idealism, and shaped by the assumptions of these movements (Erden, 2011). The supporters of this educational philosophy are Jacques Maritain, Robert Maynard Hutchins, and Mortimer Adler (Kooli, 2019). According to the perennialists, the purpose of education is to focus on personal development by teaching students ways of thinking, improving the intelligence and rationality that every person has, and helping students discover the truth (Howick, 1980). Perennialism sees education as a way back, a journey back, or a process of returning to the present situation and human culture, as in past cultures, by reusing general values or principles that have become a strong, solid way of life. The task of education is to give information about the absolute, absolute, and eternal truth values that exist in past cultures, which are seen as the ideal culture (Malik, 2021). Perennialists aim to close the gap between religions, philosophies, and cultures with this view (Nasr, 1996). In this context, it advocates that students read books called basic, major, or classic, discuss their contents, and explore the topics without forgetting their historical context (Gutek, 2005). According to the perennialists, while developing educational programs, the works that are the product of thought and which contain essential thoughts should be put in the center and subject-centered designs should be prioritized (Ornstein & Hunkins, 2014). The teacher is at the center of the teaching process and should focus on using the Socratic method of inquiry (Gutek, 2001). The teacher is a model for the students in every field, and takes responsibility for showing ways to think logically and consistently. The teacher should tend to be more authoritarian (Kooli, 2019). Finally, since perennialists believe that education is the process of transferring knowledge that changes from generation to generation, the teacher is an authority figure who conveys and interprets knowledge in the classroom (Bago, 2001).

Essentialism

Essentialism is structured by philosophers such as W. C. Bagley, I. L. Kandel, and A. E. Bestor based on idealist and realist philosophy (Acar-Erdol, 2018). According to essentialism, the purpose of education is to teach students

the knowledge that society has revealed and accumulated, which is assumed to be true and to carry the culture to future generations (Sönmez, 2008). Therefore, it emphasizes the transfer of basic knowledge and cultural heritage to the younger generation (Sadker & Sadker, 2017). In this context, the teaching of disciplines and basic skills that have been beneficial in the past should be transferred to new generations and carried to the future (Ornstein & Levine, 2008). Teaching aims to create a good knowledge of basic subjects rather than changing the behavior of students (Howick, 1980). The socialization of students should be ensured during the education process. Basic cultural values need to be instilled in students, and they should receive training through programs designed by courses such as social sciences (sociology, psychology, history), sciences (physics, chemistry, biology), and general culture (language, fine arts, philosophy, mathematics, geometry) (Sönmez, 2008). Among the tools used in the education process are narration, memorization, repetition, practice, and evaluation (Lynch, 2016). The teacher must use his authority to make the students work hard. The teacher is active in the learning process and the student is passive (Ornstein & Hunkins, 2014). When the teacher feels the need, he can punish and use the punishment method (Ellis, 2015).

Progressivism

The main philosophical source of progressivism is John Dewey's pragmatic empiricism (Kooli, 2019). The progressive education philosophy considers education as life, and it believes in change and rejects all values, dogmatic knowledge, and absolute truths. According to progressivism, learning should take place through experiential inquiry. This inquiry should also cover ideas, values, and issues (Gutek, 2005). According to progressivism, the aim of education is to accept the change in the social structure and the world, emphasizing that the knowledge and skills that students should have are not fixed, but have a variable structure, and to continue educational studies following this reality (Çüçen, 2018). Scientific methods and problem-solving are essential in acquiring knowledge (Demirel, 2012). According to progressivism, students are not passive learners who have assimilated the material and information previously prepared by their teachers, and students should learn actively, by doing, and by living in the learning process (Campbell, 1995). The content of the education program in progressivism should be structured by centered on the needs, interests, and desires of the learner (Ornstein & Levine, 2008; Sönmez, 2008). In progressivism, the teacher is not authoritative and the sole transmitter of knowledge, on the contrary, he is a guide (Segall & Willson, 2004). The teacher should provide meaningful learning when students actively participate in learning activities that they are interested in, and he must believe that the important thing is real and experiential learning. This philosophy manages students' different learning styles and tendencies, multiple intelligences, and individual learning preferences (Magulod, 2017).

Reconstructionism

Reconstructionism is an educational philosophy that emerged in the early twentieth century and is based on pragmatism, and its followers are Theodore Brameld, Jane Addams, and George S. Counts (Griner Hill & Werner, 2006). Reconstructionism is an educational philosophy that aims to rebuild society (Gökbulut, 2020). Therefore, in this view, education should be community-centered (Biçer et al., 2013). According to reconstructivists, the purpose of education is to solve social problems, overcome social and cultural crises, and rebuild society (Griner Hill & Werner, 2006). Reconstructionism aims to reveal the consciousness of the individual about social events, concerns,

and problems (Magulod, 2017). Reconstructors consider restructuring and reforming society to create a world society based on shared values, social justice, and equity. The reconstructivism movement does not see the education system not only as life but also sees it as the future (Dewey, 1938). This philosophy provides a vision of a better world by seeking solutions and addressing social concerns and problems, and it proposes the idea that teachers should be a vehicle for encouraging and guiding students for social reforms. Teaching methods can include problem-oriented, community-based learning and group discussions (Magulod, 2017). Reconstructivists have considered restructuring and reforming society to create a world society based on shared values, social justice, and equity. For this reason, the needs of all social classes should be focused on while developing the education program. Problems such as ethnic and class discrimination, unemployment, poverty, gender discrimination, political oppression, wars, nuclear accidents, and environmental pollution should be tried to be solved through education. Education should focus on these problems and education should be the process in which these problems are resolved, interpreted, and evaluated (Biçer et al., 2013). In reconstructionism, a democratic classroom environment should be provided in schools (Arslan, 2017). In the learning process, the content should create problem situations that can be encountered in real life and solutions should be sought for these problems (Ellis, 2015; Ornstein & Hunkins, 2014). Students should be expected to focus and find solutions to real problems such as violence, hunger, international terrorism, inflation, and inequality (Cohen & Gelbrich, 1999). In this process, the teacher should be the representative of change and innovation as a leader (Segall & Wilson, 2004).

Existentialism

Existentialism is a philosophical movement that cares about the uniqueness and freedom of the person. In existentialism, the person is responsible for self-knowledge and recognition (Foulquie, 1998). Representatives of this movement are philosophers such as Martin Heidegger, Gabriel Marcel, Jean-Paul Sartre, and Kierkegaard (Winch & Gingell, 2002). In the existential education approach, students should be able to freely create their value systems without being interfered with (Demirel, 2012). In existentialism, education is a tool for the individual to gain responsibility and the ability to choose, and for the individual to create his value system (Günay-Erkol, 2021). To exist is to find the essence of life (Magulod, 2017), this essence can be associated with being happy. The key to human happiness in existentialism begins with raising awareness of our uniqueness and individuality, making our own choices, and taking responsibility for our actions (Kooli, 2019). Students should decide their learning paths and choose their areas of interest (Ornstein & Hunkins, 2014). In existentialism, the student has the freedom to learn. Students should be given freedom of choice to reveal their potential and creativity (Magulod, 2017). For this reason, an existentialist education program should be designed in a way that focuses on diversity and experiences where individual choices can be made. Teachers should not impose what is good or bad on their students and should not direct them (Sönmez, 2008). Existentialism advocates a student-centered teaching approach. Teachers should help students make various choices and guide them to define themselves (Magulod, 2017).

Methods

Study Group

While developing the Parent Educational Philosophy Tendency Scale, the sample size suggested by Cramer and Bryman (2001) was accepted. According to Cramer and Bryman (2001), while developing the scale, the sample should be ten times the number of items in the draft scale. There are 22 items in draft form in the Parent Educational Philosophy Tendency Scale. For this reason, it was accepted that the number of people required to be in the sample should be at least 220 people for each of the exploratory and confirmatory factor analyses of the sample size. The multistage sampling method was used in the sampling. The universe is divided into layers according to primary, secondary, and high school parents. These parents are divided into sub-strata according to the grade levels of their students. At the level of classes, the classes in the lower layers were considered clusters. With the random cluster sampling method, 1,330 parents formed the sample of the scale development process. This sample was randomly divided into two, half for exploratory factor analysis and half for confirmatory factor analysis. 65.7% of the participants are female and 34.3% are male. 41.2% of the participants are primary school parents, 30.6% are secondary school parents and 28.2% are high school parents. 84 parents determined by random cluster sampling method from primary, secondary, and high school parents in the population formed the number of people in the test-repeat process to estimate the stability of the scale.

Data Collection Tools

Development of the draft scale:

Before starting to write the item on the Parent Educational Philosophy Tendency Scale (hereafter PEPTS), the literature was searched. In these studies, the dimensions and qualities of parents' educational philosophy tendencies were revealed (Alkayiş, 2021; Baş, 2016; Bhat, 2019; Carr, 2004; Chen & Uttal, 1988; Ergün, 2009; Franzosa, 1984; Güçlü, 2018; Karadağ et al., 2009; Knight, 2008; Mason, 2008; Morrison, 2008; Mead et al., 2015; Noddings, 2018; Peters, 2022; Phillips, 2008; Pring, 2004; Ramaekers, 2018; Shun, 2021; Siegel et al., 2008; Sikandar, 2015, Tesar & Locke, 1973). In this process, it has been determined that parent educational philosophy tendencies can be in five dimensions (perennialism, essentialism, progressivism, reconstructions, and existentialism). These dimensions are related to the general philosophy of education movements. Items related to this draft scale focused on educational philosophy movements were written, and an item pool was created with the written items. Expert opinion was received on the candidate items in the item pool. These experts are seven academics who have carried out studies in this field. The consistency of the opinions of the experts regarding the evaluation carried out was tested with the Kendall Coefficient of Concordance analysis. There was no statistically significant difference in the opinions of the experts regarding the evaluation (Kendall's W= .678 p=.562). Revisions were made within the scope of the experts' suggestions.

PEPTS was presented to the opinions of two linguists to be examined in terms of criteria such as expression, readability levels, intelligibility, spelling, sentence structures, words, and phrases. Necessary corrections were made in the draft scale items within the scope of the opinions and suggestions of the linguistic experts.

PEPTS is a measurement tool that aims to measure parents' educational philosophy tendencies. To reflect the views of the parents on the philosophy of education they have, the opinions of the measurement and evaluation experts were taken about how they could respond to the scale items. The opinions of measurement and evaluation experts were evaluated and a 5-point Likert type was used to answer the scale items. These Likert-type answer options were scored with "Very suitable for my opinion (5 points)", "Suitable for my opinion (4 points)", "Partially suitable for my opinion, partially not (3 points)", "Not suitable for my opinion (2 points)" and "Not suitable my opinion at all (1 point)".

To test the answers to the PEPTS by the parents, 43 parents were piloted. During this pilot implementation process, the parents were asked to indicate the draft scale items that were incomprehensible, unreadable, and uncertain. During the pilot implementation process, some corrections were made in the draft scale within the scope of the opinions of the parents. The draft version of the PEPTS was presented to the opinions of two linguist experts and their review was provided. PEPTS was finalized based on the suggestions of linguistic experts. In the pilot applications, it was determined that the draft version of the PEPTS could be answered in 5-6 minutes.

Construct Validity of the Parent Educational Philosophy Tendency Scale (PEPTS)

To test the construct validity of the PEPTS, first exploratory factor analysis and then confirmatory factor analysis were performed. Findings related to these analyses are presented respectively.

Exploratory Factor Analysis (AFA) of the Parent Educational Philosophy Tendency Scale

Data were collected by applying the draft version of PEPTS for EFA to 624 parents. First, the Z scores of the collected data were calculated and it was examined whether they had extreme values. As a result of these examinations, 25 data were determined to be extreme values and were not included in the data set created for EFA. The suitability of the data generated for EFA for factor analysis was decided by examining the KMO coefficient, the Bartlett test Chi-square value, and the diagonal values in the Anti-image matrix. As a result of the analysis, the KMO coefficient was .929, and the Bartlett test Chi-square value was found to be statistically significant ($X2=7752,607$; $p<0.01$). It has been determined that all of the diagonal values in the anti-image matrix are greater than 0.50. With these values, it was decided that the data collected for PEPTS were suitable for factor analysis.

Table 1

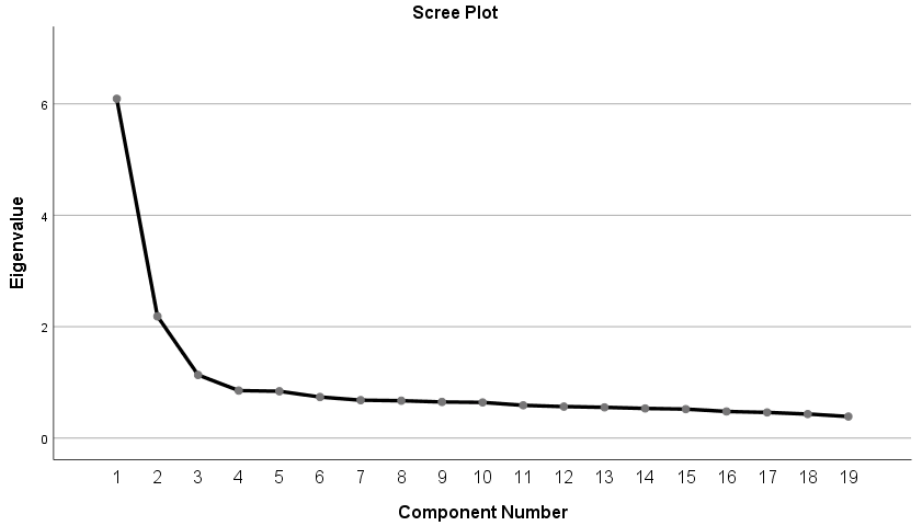
Expert opinions on item extraction from the EFA Parent Educational Philosophy Tendency Scale

Extracted scale item no	Factor load	Variance explained by item presence	Variance explained by item inference	Expert opinion
M5	0,458	48,376	48,967	The item content overlaps another article with similar content
M11	0,419	48, 967	49,564	The item does not theoretically overlap with the relevant dimension
M15	0,457	49, 564	50,216	The item does not theoretically overlap with the relevant dimension

In the Explanatory Factor Analysis (EFA) of PEPTS, the principal axis dimensioning method and factor analysis with oblique rotation were applied for factor loads (Principal Component) analysis. There were 3 factors with an eigenvalue above 1. For the items to be included in a factor, factor loadings of at least 0.40 were accepted. During the EFA analysis process, items with a factor load below 0.40 and overlapping items were sequentially removed from the analyses, and the analyses were performed again. Expert opinions were taken for each item inference.

Figure 1

Slope graph of Parent Educational Philosophy Tendency Scale



The Slope Plot of PEPTS (Figure 1) indicated the presence of three factors. After the execution of Exploratory Factor Analysis (EFA) in the development of PEPTS, the total variance accounted for by the three sub-factors equated to 50.216%. A comprehensive account of the EFA outcomes for PEPTS is presented in Table 2.

Table 2

Factor Structure of Parent Educational Philosophy Tendency Scale

Item	Renewed Number	Common Variance	Component-1 Factor Load	Components		
				1	2	3
M1	E1	.630	.741	.741		
M17	E4	.550	.681	.725		
M13	E7	.507	.643	.707		
M6	E10	.487	.630	.696		
M19	E13	.522	.688	.660		
M14	E16	.448	.592	.623		
M7	E17	.518	.695	.582		
M10	E19	.446	.665	.404		
M12	E2	.503	.556		.732	
M3	E5	.549	.626		.679	
M4	E8	.549	.638		.658	
M9	E11	.339	.464		.569	
M22	E14	.446	.663		.476	
M20	E3	.600	.320			.765
M5	E6	.513	.353			.692
M16	E9	.548	.409			.681
M2	E12	.503	.247			.668
M18	E15	.296	.257			.485
M21	E18	.402	.547			.424
Variance Source				B1	B2	B3
Explained Variance				32,266	11,825	6,125
Total Variance: 50,216						

With the EFA analysis of PEPTS, factor loads were found to vary between .404 and .765. The factor loads of the items of the PEPTS are above the accepted .40 and these items can be considered to measure the predicted structure. Items were named according to the factors in which they were grouped and according to the literature. The first factor of PEPTS consisting of E1, M4, M7, M10, E13, E16, E17, and E19 items was "individualist", the third factor consisting of E2, M5, M8, E11, and E14 items was "socialist", E3, M6, E9, E12 and the second factor, consisting of items E15 and E18, was named "subject-centered".

To evaluate that the sub-dimensions of the PEPTS together measure the same construct, the relationship between the scores of the sub-dimensions was examined. The values of this relationship are given in Table 3.

Table 3

Correlation coefficients between the factors of the Parent Educational Philosophy Tendency Scale

		Subject-centered	Socialist
Individualist	r	.243**	.664**
Subject-centered	r		.277**

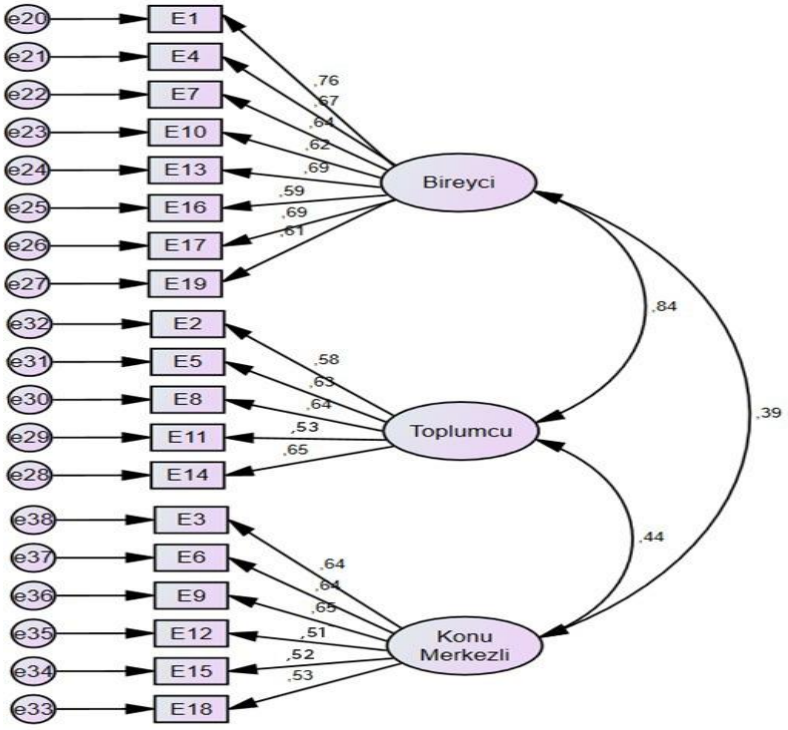
**: p<.01

There is a positive statistically significant relationship between all sub-dimension puns of the Parent Educational Philosophy Tendency Scale.

Confirmatory Factor Analysis (CFA) of Parent Educational Philosophy Tendency Scale: Confirmatory factor analysis for PEPTS was carried out with a data set of 654 data. The 19-item three-factor version of the scale obtained as a result of CFA was tested with confirmatory factor analysis. The diagram of PEPTS obtained by DFA is given in Figure 2.

Figure 2

CFA results of the Parent Educational Philosophy Tendency Scale: Standardized Path Diagrams



When the path diagrams of PEPTS related to CFA were examined in Figure 2, the standardized path coefficients of the items were between .52 and .76. Kline (2005) recommends that the standardized path coefficients should be .50 and above for the item to represent the relevant variable. According to the standardized path coefficients of the items of the PEPTS, the items of the scale have sufficient predictive value. The fit index values of the model related to the CFA of PEPTS are given in Table 4.

Table 4

Comparison and fit index values of CFA results of the Parent Educational Philosophy Tendency Scale

Model	**χ2/sd**	**GFI**	**CFI**	**IFI**	**AGFI**	**NNFI**	**RMSEA**
Fit	688.830/147=4.686	.947	.929	.929	.932	.912	.053
Comments*	Adequate Fit	Adequate Fit	Adequate Fit	Adequate Fit	Adequate Fit	Adequate Fit	Acceptable

** (Hu ve Bentler, 1999; Schumacker ve Lomax, 2004)*

The model is at an acceptable level according to the fit indices of the three-factor structure of PEPTS that emerged as a result of CFA. According to the values obtained by confirmatory factor analysis of PEPTS, it is assumed that it represents the Parent Educational Philosophies that are theoretically put forward in the "individualist", "subject-centered" and "socialist" upper dimensions.

Reliability of Parent Educational Philosophy Tendency Scale

Findings regarding the reliability of the Parent Educational Philosophy Tendency Scale: The reliability of the PEPTS was evaluated by the item-total score correlation values of the items, the t values for the lower and upper group difference, and the Cronbach's alpha internal consistency coefficient values of the scale and its sub-dimensions. The results of these values are given in Table 5.

Table 5

Some reliability analysis values of the reliability scale items of the Parent Educational Philosophy Tendency Scale

Sub-dimensions of the Parent Educational Philosophy Scale	Item No.	t value for the difference between the upper and lower group	Item-total score correlation	Cronbach alpha internal consistency coefficient
Individualist	E1	20.64**	.755	.896
	E4	16.76**	.683	
	E7	15.37**	.684	
	E10	15.00**	.653	
	E13	19.51**	.703	
	E16	13.61**	.608	
	E17	18.04**	.725	
	E19	18.33**	.636	
Socialist	E2	15.50**	.568	.781
	E5	13.65**	.565	
	E8	15.75**	.646	
	E11	13.16**	.412	
	E14	19.53**	.603	
Subject-centered	E3	10.97**	.540	.717
	E6	11.56**	.531	
	E9	13.84**	.570	
	E12	4.25**	.330	
	E15	9.43**	.358	
	E18	15.53**	.471	

**: $p<.01$

There is a significant difference between the upper and lower group item mean scores of the PEPTS items. Therefore, it can be assumed that PEPTS distinguishes individuals with high scores from the sub-dimensions and those with low scores from the scale.

The item-total score correlation of the items of the PEPTS ranged from .330 to .755. The reliability of the individualist, socialist, and subject-centered dimensions of the PEPTS was tested with the Cronbach alpha internal consistency coefficient method. According to the reliability analyses performed, Cronbach's alpha internal

consistency coefficient values are .896 for the "individualist" sub-dimension, .781 for the "socialist" sub-dimension, and .717 for the "subject-centered" sub-dimension of PEPTS.

The Stability of the Parent Educational Philosophy Tendency Scale

The reliability of PEPTS to make stable measurements was tested with the test-retest method. PEPTS was applied to a group of 84 parents, and three weeks later, it was applied again to the same parent group. The two scores obtained as a result of these applications and the relationship between the groups were tested with the Pearson product-moment correlation technique. The correlation coefficient between the two applications was found to be r= .76 ($p<0.01$) for the "individualist" dimension, .81 ($p<0.01$) for the "subject-centered" dimension, and .75 ($p<0.01$) for the "socialist" dimension. Based on these results, it can be assumed that PEPTS makes stable measurements.

Decision Regarding Parent Educational Philosophy Tendency Scale

The three-dimensional structure of PEPTS revealed by EFA was tested with DFA and the fit values were at an acceptable level. It has been accepted that PEPTS represents the perception of parents' educational philosophy. The internal consistency coefficients of the sub-dimensions of PEPTS were found to be at a good level. According to these results, PEPTS is a reliable and valid scale.

Getting a total score from PEPTS is not theoretically intelligible. The scale depicts the tendencies of the parents' philosophical views. For this reason, the scale can be scored separately with its sub-dimensions. PEPTS scores between 4 and 20 in the "individualist" sub-dimension, between 8 and 40 in the "socialist" sub-dimension, and between 4 and 20 in the "subject-centered" sub-dimension. A high score from each sub-dimension of PEPTS indicates that parents have a high level of proficiency in the perception of educational philosophy in the relevant sub-dimension, and a low score indicates that parents have a low level of proficiency in the perception of educational philosophy in the relevant sub-dimension.

Discussion, conclusion, and recommendations

The research has established that the developed PEPTS serves as an effective measurement instrument for assessing parental inclinations toward educational philosophies. The educational philosophy tendency of the parents is the weighted perspective of the parents about the purpose, process, methods, and the roles of the stakeholders. This philosophical tendency consists of parents' basic inquiries about the purpose, content, and learning environments of education and the answers they find as a result of these inquiries.

When the validity and reliability values of the PEPTS were examined, it was determined that the scale items could both measure the quality it aims to measure and distinguish the level of possession of the quality to be measured. According to expert opinions and content validity, it can be said that PEPTS can represent the universe to be measured. According to the exploratory factor analysis values performed in testing the construct validity of the PEPTS, the factor loadings of the model can be considered to be sufficient. The t values for the difference between the lower and upper groups of the scale show that the PEPTS can measure the construct it measures distinctively. The scale is found to have a three-dimensional structure according to the results of the EFA and CFA analyses of the PEPTS, which was developed to measure the educational philosophy tendencies of the parents. The dimensions of

the scale are named individualist, socialist, and subject-centered. The scale consists of 19 items. Eight of these items are related to "individualist", five to "socialist" and six of them to the "subject-centered" dimension. The "individualist" dimension of the scale includes items such as "Schools should be the environments where necessary activities are carried out for our children to ensure their individual development.", "Our children should be allowed to choose their truths by giving different options in the education process". Some items of the "socialist" dimension of the scale are "Schools should be active in solving the problems of the society they are in.", "A world based on democratic values should be created through education". The "subject-centered" dimension of PEPTS is also "The teacher should be the person who teaches the knowledge to our children and provides discipline." and "The important thing in education is that our children learn by memorizing the information in the lessons". The Educational Philosophy Adoption Scale, which was developed by Ekiz (2005) to measure the level of adopting educational philosophies of primary school teacher candidates, has four dimensions: perennialism, essentialism, progressivism, and reconstructionism. The Educational Beliefs Questionnaire developed by Silvernail (1992) consists of three subscales namely perennialism, romanticism, and progressivism. The Educational Belief Scale developed by Yılmaz et al. (2011) and the Philosophical Orientations Scale developed by Bilbao (2015) consist of five subscales: perennialism, essentialism, progressivism, reconstructionism, and existentialism. The Adult Education Philosophy Inventory developed by Zinn (2004) consists of liberal, behavioral, progressive, humanist, and radical dimensions. "What is Your EP?" developed by Jersin (1972) consists of 11 questions about essentialism, progressivism, and existentialism. The data collection tool developed by Jarrah et al. (2020) measures the tendency of progressivism education philosophy. The Scale for Determining Educational Philosophy Based on Adjective Pairs for Educators and Teachers, developed by Demir and Çeliköz (2023), has seven dimensions, namely knowledge, teacher, student, educational environment, values, program content, and assessment and evaluation. The dimensions of the PEPTS do not coincide with the dimensions of these scales.

The Philosophy Preference Assessment Scale developed by Çetin et al. (2012) is two-dimensional. The dimension of the Philosophy Preference Assessment Scale, which consists of the items of perennialism and essentialism educational philosophies, is called "Traditional Educational Philosophy", and the dimension that consists of the items of progressivism and reconstructionism educational philosophies is called Contemporary Educational Philosophy. The dimensions of the Philosophy Preference Assessment Scale are partially similar to the dimensions of the Parent Educational Philosophy Tendency Scale. The "individualist" dimension of the Parent Educational Philosophy Tendency Scale consists of items containing perennialism and essentialism education philosophies.

The Inventory of Educational Thought and Applications Scale developed by Kumral (2014) has two dimensions, and these are the traditional and contemporary dimensions. Traditional subscale shows that thoughts and practices are formed with a more realist philosophical understanding and a perpetual and essentialist philosophy of education. The contemporary sub-scale reveals that the thoughts and practices regarding the education process are mostly formed with a pragmatic, existentialist, and constructivist approach, with a progressive and reconstructive education philosophy (Kumral, 2014). Research results on this scale partially support the findings of PEPTS. The "individualist" dimension of the Parent Educational Philosophy Tendency Scale is associated with perennialism and

essentialism, the "socialist" dimension is associated with reconstructionism, and the "subject-centered" dimension with progressivism and existentialism.

When the literature is examined, the scales related to the philosophy of education consist of perennialism, essentialism, progressivism, and reconstructionism, while existentialism is added to these in some scales. Also, there is a two-dimensional structure in some scales in the literature. In the study, PEPTS items related to progressivism and existentialism were clustered in the "Individualist" dimension of the scale. Existential thinkers accept that truth originates from humanity (Malik & Akhter, 2013). Progressivism is a student-centered educational philosophy. The teacher is not authoritative and the only transmitter of knowledge, on the contrary, he is a guide (Segall & Willson, 2004). Like progressivism, existentialism places the student at the center of the educational process, and it is considered a student-centered philosophy. Existentialism also takes into account individual needs, contemporary relevance, and preparing students for a changing future. Students and teachers work together to determine what needs to be learned and the best way to learn it (Sadker & Zittleman, 2018). An existential philosophy of education is student-centered and focuses on raising awareness of the importance and priority of freedom in learners' lives. The fact that learners make their own choices in the learning process reflects such a philosophy. The common point where existential philosophers meet is human freedom (Kooli, 2019). For all these reasons, the items of the scale about progressivism and existentialism are clustered together.

The items related to perennialism and essentialism of the Parent Educational Philosophy Scale are clustered under the "subject-centered" dimension. Idealism and realism, known as classical system philosophies, form the basis of perennialism theory (Weber, 1998). According to this movement, education is based on a subject-centered approach. Based on the existence of an unchanging essence, it aimed to grasp the essence in question. Essentialism, another theory of classical philosophy, considers man as a cultural entity. According to this movement, education should be based on culture, which is the accumulation of humanity. The function of the school is to transfer the existing knowledge and skills, which we can define as a produced subject, to the student (Hançerlioğlu, 1989). In essentialism, a method based on memorization and repetition is followed (Varış, 1994: 86-88). According to these explanations, it is understandable that PEPTS items related to perennialism and essentialism are grouped in the "subject-centered" dimension of the scale.

J. Dewey, who developed the educational constructive aspect of the philosophy of pragmatism, sees the school as a part of social life. According to Dewey, the aim of education should be to re-establish society. The basic principle of this movement is that life is in constant change and accordingly every moment must be reconstructed. Therefore, the field of education should be structured to eliminate deficiencies and solve existing problems (Varış, 1994). Since what is important in reconstructionism is society and social problems, it can be accepted that the articles of PEPTS about reconstructionism are described as "socialist".

The dimensions of PEPTS coincide with the types of curriculum design. Curriculum design is the process in which the answers are sought for what kind of behavior and characteristics will be gained by the individuals in the education process or what kind of knowledge, skills, understanding, and attitudes will be gained by the individuals through this program and these answers are applied (Özdemir, 2007). There are three types of curriculum design.

These are subject-centered, student-centered, and problem-centered curriculum design approaches (Ornstein & Hunkins, 2014). As it can be understood, the dimensions of these program design types and PEPTS show similarities in name. In addition, subject-centered curriculum design approaches are based on perennial and essentialist educational philosophies, which are the reflection of idealist and realist philosophies on education (Gutek, 1988; Sönmez, 2008). The subject-centered philosophical trend of PEPTS also overlaps with the subject-centered program design type in terms of content. Furthermore, the basis of learner-centered program design approaches is based on pragmatism as a philosophy and progressivism as an educational movement (Gutek, 1988).

The individualist philosophical dimension of PEPTS is parallel to the learner-centered program design type in terms of content and meaning. The latest problem-centered program design is based on pragmatism as a philosophy and progressivism and its extension, reconstructionism, as a philosophy of education. Problem-centered designs are designed to strengthen cultural and traditional values and to point out the still unmet needs of society (Demirel, 2012). In this respect, it is similar to the socialist philosophical dimension of PEPTS. The clustering of PEPTS items into program design types is meaningful, assuming that design types are based on educational philosophy. These results may show that it is more functional to characterize the educational philosophy tendencies of individuals as perennial, progressivism, reconstructionism, and existentialism, as well as individualist, socialist and subject-centered.

When the Cronbach Alpha internal consistency coefficient is examined to determine the reliability of the PEPTS, which has been validated, the reliability coefficients of the individualist, socialist, and subject-centered dimensions of the scale are greater than .70. Fraenkel, Wallen, and Hyun (2014) highlighted that the Cronbach Alpha coefficient should be .70 and above, based on this reference, the scale is also reliable. According to the scores obtained from the scale items, the significant difference between the mean scores of the lower and upper groups in favor of the upper group also shows that a parent with a high score from the sub-dimensions of PEPTS can distinguish a parent with a low score. A high score obtained for each individualist, socialist, and subject-centered dimension of the PEPTS indicates that parents have a strong perception of educational philosophy within the respective sub-dimension. Conversely, a low score suggests a weaker perception of educational philosophy within that specific sub-dimension. At the same time, the results regarding the stability of PEPTS show that the scale measures stably. According to this result, it can be accepted that the scale is reliable in terms of stability.

In light of the analyses and expert opinions, PEPTS items effectively measure the intended quality and the structure to be assessed. The scale demonstrates high construct validity and provides consistent measurements. Based on the comprehensive findings related to PEPTS, it is evident that the developed scale is both valid and reliable. Moreover, the applicability of the developed scale can be examined using diverse samples of parents, contributing to the collection of data that supports the determination of parents' educational philosophies. Additionally, the PEPTS could prove valuable to field experts and researchers investigating parental educational philosophies. Testing the scale through various studies involving larger and more diverse samples could further enhance the contributions of this field.

Ethic

I declare that the research was conducted in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Author Contributions

This article was written with the joint contributions of two authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

Funding

No scholarships or payments have been received from any institution for this article.

References

Acar-Erdol, T. (2018). *Permanence*. F. Manav (Editor). In the philosophy of education (p. 93-106). (1st Edition). Ankara: Pegem Academy.

Alkayiş, A. (2021). Digitalization and Education 4.0 from the perspective of education philosophy. *Bingol University Journal of Social Sciences Institute (BUSBED), 11*(21), 221-237.

Anderson, K.J. & Mınke, K.M. (2007) Parent Involvement in education:Toward an Understanding of Parents' Decision Making. *The Journal of Educational Research* p.311-323

Arslan, A. (2017). *Felsefeye giriş [Introduction to Philosophy]*. Ankara: BB101 Yayınları.

Aslan, S. (2017). Examination of primary school teachers' educational beliefs in terms of various variables. *Kastamonu Magazine, 25*(4), 1453-1458.

Aytaç, A. (2020). *Öğretmen adaylarının epistemolojik inançlarının ve eğitim felsefesi eğilimlerinin öğretme ve öğrenme anlayışları üzerindeki etkisi [The impact of teacher candidates' epistemological beliefs and educational philosophy tendencies on their understanding of teaching and learning]*. [PhD Thesis] Balıkesir University.

Bago, A. L., (2001). *Curriculum development: the Philippine experience*. 2nd Edition. C & E Publishing, Inc

Baş, G. (2016). The relationship between teachers' philosophy of education beliefs and their teaching-learning understanding. *Education and Science, 40*(182).

Bhat, A. M. (2019). *Islamic philosophy of education*.

Bilbao, P. B., (2015). *Field Study* 6. Lorimar Publishing. Quezon City

Biçer, B., Er, H., & Özel, A. (2013). The relationship between pre-service teachers' epistemological beliefs and their educational philosophies. *Theory and Practice in Education*.

Campbell, J. (1995) *Understanding John Dewey: Nature and Cooperative Intelligence*, Open Court, Chicago.

Carr, W. (2004). Philosophy and education. *Journal of Philosophy of education*, *38*(1), 55-73.

Chen, C., & Uttal, D. H. (1988). Cultural values, parents' beliefs, and children's achievement in the United States and China. *Human development, 31*(6), 351-358.

Clarke, B. L., Sheridan, S. M. ve Woods, K. E. (2009). *Elements of healthy family-school relationships*. In S. L. Christenson & A. L. Reschly (Eds.). Handbook of school-family partnerships, New York: Routledge, 61–79.

Cramer, D., & Bryman, A. (2001). *Quantitative data analysis with SPSS Release 10 for Windows: a guide for social scientists*. Routledge.

Cohen, L. M., & Gelbrich, J. (1999). Educational philosophies. *Retrieved*, *8*(01), 2010.

Çetin, B., İlhan, M., & Arslan, S. (2012). Examining the educational philosophies adopted by teacher candidates in terms of various variables. *The Journal of Academic Social Science Studies, 5*(5), 149-170.

Çüçen, K. A. (2018). *Introduction to philosophy (5th ed.).* Ankara: Sentez Publishing.

Demirel Ö. (2012). *Curriculum Development in Education*. Ankara: Pegem.

Demir, D. & Çeliköz, N. (2023). Adjective Pair-Based Educational Philosophy Determination Scale for Educators and Teachers: A Scale Development Study. *Journal of Gazi University Gazi Education Faculty, 43*(1), 425-474.

Dewey, J. (1938). The philosophy of the arts. John Dewey: *The Later Works, 13,* 357-368.

Ellis, A. K. (2015). *Education program models* (Trans. Ed: A. Arı). (1st Edition). Konya: Education Publishing House.

Ekiz, D. (2005). Comparison of the tendencies of the primary school teacher candidates regarding the philosophy of education movements. *Journal of Ondokuz Mayıs University Faculty of Education, 19,* 1-11.

Erden, M. (2011). *Introduction to educational sciences* (6th Edition). Ankara: Friend Publishing House.

Ergün, M. (2009). *Educational philosophy*. Ankara: Pegem Academy

Foulquie, P. (1998). *The existence of the existentialist (Trans: Y. Şahan). (1st Edition). Istanbul: Social Transformation Publications.*

Fraenkel, J.R., Wallen, N.E., & Hyun, H. (2014). *How to design and evaluate research in education*. New York: McGraw-Hill Education.

Franzosa, S. D. (1984). The best and wisest parent: A critique of John Holt's philosophy of education. *Urban Education, 19*(3), 227-244.

Gökbulut, B. (2020). The relationship between prospective teachers' educational beliefs and 21st century skills. *Turkish Studies, 15*(1), 127-141.

Griner Hill, L., & Werner, N. (2006). Affiliative motivation, school attachment, and aggression in school. *Psychology in the Schools, 43*(2), 231-246.

Gutek, G. L. (1988). *Philosophical and ideological perspectives on education*. Needham Heights, MA: Allyn and Bacon.

Gutek, G. L. (2001). *Philosophical and Ideological Approaches to Education*. (trans. Nesrin Kale). Ankara : Ütopya Yayıncılık.

Gutek, G.L. (2005). Jacques Maritain and John Dewey on education: A reconsideration. *Educational Horizons, 83*(4): 247-263.

Gutman, L. M. & Midgley, C. (2000). The role of protective factors in supporting the academic achievement of poor African American students during the middle school transition. *Journal of Youth and Adolescence, 29,* 233–248.

Güçlü, M. (2018). *Educational philosophy*. Pegem Academy.

Günay-Erkol, Ç. (2021). *Wounded masculinities: loneliness, alienation and anger in March 12 novels* (Vol. 3009). Communication Publications.

Hançerlioğlu, O. (1989). *Felsefe Sözlüğü [Dictionary of Philosophy]*. İstanbul: Remzi Bookstore.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit ındexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55. http://dx.doi.org/10.1080/10705519909540118

Howick, W.H. (1980). *Philosophies of education*. Danville: Interstate Printers and Publishers, Inc, 11.

Jarrah, A. M., Khasawneh, O. M., & Wardat, Y. (2020). Implementing pragmatism and John Dewey's educational philosophy in Emirati elementary schools: case of mathematics and science teachers. *International Journal of Education Economics and Development*, *11*(1), 58-75.

Jersin, P. (1972). What is your educational philosophy: A test which identifies your educational philosophy? *Clearing House, 46*, 274-278

Kagan, D. (1992). Professional growth among pre-service and beginning teachers. *Review of Educational Research, 62*(2), 129-169

Karadağ, E., Baloğlu, N., & Kaya, S. (2009). An empirical study on the level of school administrators' adoption of educational philosophy currents.

Kauchak, D. & Eggen, P. (2011). *Introduction to teaching: Becoming a professional* (4th ed.). Boston: Pearson Education, Inc.

Kaya, Ö.M. & Gültekin, M.(2003) Parental views on the interest and participation of families in the programs implemented in pre-school education institutions and the contribution of pre-school education institutions to family education. *Proceedings of OMEP World Council Meeting and Conference. 3*. 311-333.

Knight, G. R. (2008). *Issues and alternatives in educational philosophy*. Andrews University Press.

Kooli, C. (2019). The philosophy of education in the sultanate of Oman: Between perennialism and progressivism. *American Journal of Education and Learning*, *4*(1), 36-49.

Kumral, O. (2014). Development of educational thinking and practices (EDU) scale: Validity and reliability study. *Journal of Educational Sciences Research, 4*(2), 131-144.

Lynch, M. (2016). Philosophies of education: 2 types of teacher-centered philosophies. Available from http://www.theedadvocate.org/philosophies-education-2-types-teacher-centered-philosophies

Malik, G. M., & Akhter, R. (2013). Existentialism and classroom practice. *IOSR Journal of humanities and Social Science*, *8*(6), 87-91.

Malik, J. (2021). Philosophy of perennialism and its relevance to contemporary Islamic Education. *Ri'ayah: Jurnal Sosial dan Keagamaan*, *6*(01), 84-94.

Magulod Jr, G. C. (2017). Educational philosophies adhered by Filipino preservice teachers: Basis for proposing initiatives for 21st century teacher education preparation program. *Asia Pacific Journal of Multidisciplinary Research*, *5*(1), 185-192.

Mason, M. (2008). Complexity theory and the philosophy of education. *Educational philosophy and theory*, *40*(1), 4-18.

Mead, G. H., Biesta, G. J., & Trohler, D. (2015). *Philosophy of education*. Routledge.

Morine-Dershimer, G., & Kent, T. (1999). Source of teachers' pedagogical knowledge. In J. Gess-Newsome & N. G. Lederman (Eds.), Examining Pedagogical Content Knowledge (21-50). Netherlands: Kluwer Academic Publishers.

Morrison, K. (2008). Educational philosophy and the challenge of complexity theory. *Educational Philosophy and Theory*, *40*(1), 19-34.

Nasr, S. H. (1996). *Religion and the order of nature*. New York:Oxford University Press

Noddings, N. (2018). *Philosophy of education*. Routledge.

Ornstein, A. C., & Levine, D. U. (2008). *Foundations of educations*. (Tenth Edition). New York: Houghton Mifflin Company.

Ornstein, C., A. & Hunkins, P. F. (2014). *Philosophical foundations of the program* (Trans. S. Demiral). Curriculum: in Fundamentals, principles and problems (pp. 43-84). (Trans. Editor Arı, A.). Konya: Education Publishing House

Ornstein, A. C., Levine, D. U., Gutek, G., & Vocke, D. E. (2016). *Foundations of education*. Cengage learning.

Ozmon, H., & Carver, S. (1995). Philosophical foundations of education. 5th.ed. NJ: Prentice-Hall

Oxford Dictionaries, (2023). Available From: https://www.lexico.com/en/definition/cyberchondriac

Özdemir, S. M. (2007). *Elements of curriculum development and curriculum development process in education*. G. Ocak (Ed.), in Teaching principles and methods (s. 59-94). Ankara: Pegem A Yayıncılık

Pajares, M. (1992). Teachers' beliefs and educational research: cleaning up a messy construct. *Review of Educational Research*, *62*(3), 307-333.

Peters, M. A. (2022). Educational philosophies of self-cultivation: Chinese humanism. *Educational Philosophy and Theory*, *54*(11), 1720-1726.

Phillips, D. C. (2008). Philosophy of education. *Philosophy of Education*, 1.

Pring, R. (2004). *The philosophy of education*. Bloomsbury Publishing.

Ramaekers, S. (2018). Childrearing, parenting, upbringing: Philosophy of education and the experience of raising a child. *International handbook of philosophy of education*, 995-1012.

Sadker, D. M., & Sadker, M. P. (2017). Teachers, schools, and society. McGraw-Hill Education

Sadker, D.M. & K.R. Zittleman, (2018). *Teachers, schools, and society: A brief introduction to education*. 5th Edn., New York: McGraw-Hill Education

Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling*. 2nd Edition, Lawrence Erlbaum Associates, Mahwah.

Shun, C. L. K. (2021). The need of philosophy education to parents. *BR Nahata Smriti Sansthan Asian Journal of Mathematical Science*, 1.

Siegel, H., Phillips, D. C., & Callan, E. (2008). *Philosophy of education.*

Sikandar, A. (2015). John Dewey and his philosophy of education. *Journal of Education and Educational Development*, *2*(2).

Silvernail, D. L. (1992). The development and factor structure of the educational beliefs questionnaire. *Educational and Psychological Measurement*, *52*(3), 663-667.

Segall, W. H., and Wilson, A. V. (2004). *Introduction to education: Teaching in a diverse society* (Second Edition). USA: Rowman & Littlefield.

Sönmez, V. (2008). *Philosophy of Education* (8th Edition). Ankara: Ani Publishing

Tesar, M., & Locke, K. (1973). *The philosophy of education* (pp. 2-4). R. S. Peters (Ed.). Oxford: Oxford University Press.

Varış, F. (1994). *Curriculum Development Theory and Techniques in Education*. Alkım Bookselling Publishing, Ankara.

Weber, A. (1998). *History of philosophy* (Çev, H.V. Eralp) İstanbul: Sosyal Publications. Hançerlioğlu, 1989).

Winch, C., & Gingell, J. (2002). *Key concepts in the philosophy of education*. London: Taylor & Francis e-Library.

Young, M. (2007). *Bringing knowledge back in: From social constructivism to social realism in the sociology of education*. Routledge.

Yılmaz, K., Altınkurt, Y. & Çokluk, Ö. (2011). Development of educational beliefs scale: validity and reliability study. *Educational Sciences in Theory and Practice, 11*(1), 335–350.

Zinn, L.M. (2004). *Exploring your philosophical orientation*. In M.W. Galbraith (Ed.), Adult learning methods (3rd ed.) , 39-74. Malbar, FL: Kreiger Publishing Company.

RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: August 7, 2023
Accepted: September 25, 2023
http://dergipark.org.tr/rep
e-ISSN: 2602-3733

September 2023 ◆ 7(2) ◆ 349-369
Research Article
https://doi.org/10.54535/rep.1356565

An Analysis of the Research Published on the Concept of Activity in Mathematics Education

Merve Sümeyye Gündoğan [1]
Ministry of Education

Ferhat Öztürk [2]
Kırıkkale University

Abstract

The objective of this study is to examine the articles published in Türkiye between 2010 and 2020 on the concept of activity in mathematics education in terms of the year, type, field of study, subject, method, data collecting tool, sampling, and data analysis. The investigation herein was grounded in the application of descriptive content analysis, employing established content analysis methodologies. The sample of the study consists of 64 articles published in DergiPark, which is a part of the Turkish Academic Network and Information Center of the Scientific and Technological Research Council of Türkiye between 2010 and 2020. To collect data in the study, the Study Classification Form was developed regarding the literature, and the data were analyzed by content analysis method. Accordingly, the data were first entered into the Study Classification Form and then into the Microsoft Excel program to obtain frequency and percentage tables. The findings of the study unveiled a discernible decline in the prevalence of research endeavors pertaining to the concept of activity within the domain of mathematics education in Türkiye during recent years. It is believed that the results of this study will provide researchers with new ideas for new studies to be conducted by allowing researchers to see the tendencies of the studies on the concept of activity in mathematics education and the gaps in the relevant literature.

Key Words

Math activity • Descriptive content analysis • Published article

[1] Ministry of Education, Kırıkkale, Türkiye, E-mail: sumeyye.gozuak@gmail.com **ORCID:** 0000-0002-1077-8807
[2] **Correspondance to:** Kırıkkale University, Faculty of Education, Department of Mathematics and Science Education, Kırıkkale, Türkiye, E-mail: ferhatozturk@kku.edu.tr **ORCID:** 0000-0003-2849-8325

Citation: Gündoğan, M.S. & Öztürk, F. (2023). An analysis of the research published on the concept of activity in mathematics education. *Research on Education and Psychology (REP), 7*(2), 349-369.

Introduction

It is known that the skills that individuals are expected to put into action have changed today. In the 21st century, with the ever-changing and developing world, it is emphasized that individuals must have different skills to keep up with change and development (Ministry of National Education [MoNE], 2018). In today's education and training process, It is pointed out that they should be equipped for daily life as individuals who have realized the nature of learning, rather than directly receiving and accepting the information conveyed to them. In this regard, the duties, roles, and responsibilities expected of individuals have also changed. Primarily, this change refers to individuals who are decisive in their actions, entrepreneurial, capable of effective communication and empathy, who can produce knowledge and apply it to daily life, who can think critically, solve problems, and thus contribute to the society they live in (MoNE, 2018). In tandem with the revised curricular adjustments engendered by this transformation, the mathematics curriculum has embraced an activity-centric pedagogical approach aimed at fostering active student engagement in the learning process and cultivating the proficiencies delineated within the curriculum's framework. One of the most important features of activity-based teaching is the active participation of students in the learning process.

The primary goal of the renewed education system is to enable individuals to overcome the problems they may face throughout their lives on their own (Korkmaz & Tutak, 2017). According to MoNE (2011), there are some cognitive processes that students should realize in problem-solving-based activities and these processes are as follows:

- They should be capable of building models applicable to the problems they encounter in daily life,
- They should be capable of thinking of new ideas for different problems and be able to apply these ideas,
- They should be capable of using mathematical concepts in problem-solving,
- They should be capable of adapting the strategies they formulate for solving different problems and be able to extend the results of the solution to different problems,
- They should be capable of using mathematics in problems of different subjects.

Students need to approach the solution of problems with different perspectives in this cognitive process. In this respect, the goal of mathematics education is defined as the individual's ability to solve problems that he/she may encounter in daily life and to analyze events while doing so (Korkmaz & Korkmaz, 2017), to associate mathematics with daily life, and to enjoy mathematics instead of being afraid of it (Doruk & Umay, 2011).

Mathematics education and training enable students to broaden their thinking and perspectives. This is associated with understanding and interpreting mathematics. Proper understanding, recognition, and interpretation of mathematics starts with enjoying mathematics. Students may think of mathematics as intimidating and boring (Ocak & Dönmez, 2010). Therefore, mathematics activities should be prioritized to make mathematics more fun and meaningful, and these activities should be used as an important tool in students' mathematics learning (National Council for Teachers of Mathematics [NCTM], 2000). Engaging students in research, associating cause and effect, and making conjectures in mathematics education and training will increase their interest in mathematics. Hence,

these instructional activities are anticipated to serve as catalysts in augmenting students' enthusiasm for the subject of mathematics while concurrently providing essential scaffolding for their cognitive development in this academic discipline. For this reason, students should participate in mathematics activities that integrate multiple sensory organs into the learning process and that are appropriate for their level (Baykul, 2005; Öztürk & Öztürk, 2016; Öztürk & Öztürk, 2020).

The student should be at the forefront of mathematics activities. If the student is given priority, feels that his/her solutions are successful while doing mathematics activities, and receives positive feedback, his/her interest, attitude, and confidence in mathematics will increase. In other words, increased interest in mathematics will positively affect students' success in this field. Furthermore, it is imperative to acknowledge that a student's achievement is contingent not solely upon their comprehension of mathematical concepts but also on their competence in the practical application of mathematical principles, as articulated by Stein et al. (1996). Students need to be more active to develop these capacities (Henningsen & Stein, 1997).

In the light of these descriptions, the wide scope of the concept of activity, the wide range of activity examples in textbooks and curricula, and the lack of a sufficient and clear explanation of activities in both the curriculum and academic studies (Uğurel et al., 2010) underline the importance of this study. In this context, the question "What is the tendency of the research published on the concept of activity in mathematics education in Türkiye?" constitutes the statement of the problem of this study.

Objective of the Study

The objective of this study is to examine the trends of the articles published in Türkiye between 2010 and 2020 on the concept of activity in mathematics education in terms of year, type, field of study, subject, method, data collecting tools, sample, sample size and data analysis method.

Method

Research Design

This study, which was conducted to examine the studies published on the concept of activity in the field of mathematics education in Türkiye, was based on the descriptive content analysis approach from the content analysis methods. The content analysis is a research method based on synthesizing written materials by organizing them by certain criteria based on a systematic review in order to guide future research and disseminate information (Çalık & Sözbilir, 2014; Dinçer, 2018; Fraenkel et al., 2012; Suri & Clarke, 2009). The descriptive content analysis approach, which is one of the content analysis methods, is defined as systematic studies in which the information of the studies conducted in a certain time interval and on a specific subject is evaluated descriptively and tried to be explained mostly with frequency and percentage distributions to determine the general trend in the relevant field (Cohen et al., 2018; Çalık & Sözbilir, 2014; Dinçer, 2018). Given the typically substantial volume of studies subject to scrutiny within the purview of descriptive content analysis, the task of formulating a coherent and comprehensive conclusion predicated on meticulous interpretation and synthesis is inherently intricate, as underscored by Çalık and Sözbilir (2014) and Dinçer (2018).

Research Sample

The articles analyzed as part of this study were accessed through the DergiPark website under the umbrella of the Turkish Academic Network and Information Center (ULAKBIM) of the Scientific and Technological Research Council of Türkiye (TÜBİTAK) with the keywords "activity" and "mathematics activity". Furthermore, in pursuit of an exhaustive coverage of pertinent scholarly literature, a meticulous examination of the bibliographic references appended to the articles was conducted, thereby facilitating the incorporation of recently published studies into the ambit of this research endeavor. A total of 64 articles were accessed in 43 different journals.

Data Collecting Tool

In this study, the Study Classification Form (SCF) based on the "Publication Classification Form" developed by Sozbilir et al. (2012) was used as a data collecting tool. The SCF consists of the following headings: the citation, field, subject, method, data collecting tools, sample, and data analysis method of the study, as well as the related sub-headings. In the SCF, in line with the scope of the research, the relevant sub-analysis headings that are frequently preferred in the studies are directly mentioned, while the heading "others" is used for less preferred sub-analysis headings.

Data Analysis

The content analysis method was used to analyze the data collected from the research. The content analysis, which is used as both a research and data analysis method in the literature (Dinçer, 2018), is described as the systematic coding of quantitative or qualitative data within the framework of certain themes and classifications (Cohen et al., 2018; Fraenkel et al., 2012). The main process in content analysis is to gather studies that are similar to each other under certain notions and themes and interpret them for the reader to understand (Yıldırım & Şimşek, 2006). Accordingly, the articles covered in the research were coded separately using SCF. Both researchers coded the studies in this coding process and the inter-rater reliability was determined as 87% using the formula developed by Miles and Huberman (1994) for reliability calculation. According to Miles and Huberman (1994), a reliability of more than 70% between the researchers indicates that the coding is consistent. After the coding processes of all the studies within the scope of the research were completed, the findings obtained from the SCFs were processed with the Microsoft Excel program and attempted to be described and explained graphically with frequency percentages.

Results

This section delineates and elucidates the outcomes derived from an analysis conducted within the contextual framework encompassing the distribution of articles across distinct temporal periods, fields of study, subject matter, methodological approaches, data collection instruments, sampling procedures, and data analysis methods, pertaining to the discourse surrounding the concept of activity in the realm of mathematics education in Türkiye. These findings are graphically represented utilizing the Microsoft Excel program, presenting frequency percentages for enhanced visual comprehension and analytical insight.

The data obtained for the question *"What is the distribution of the articles published on the concept of activity in mathematics education according to years?"* are given in Figure 1.

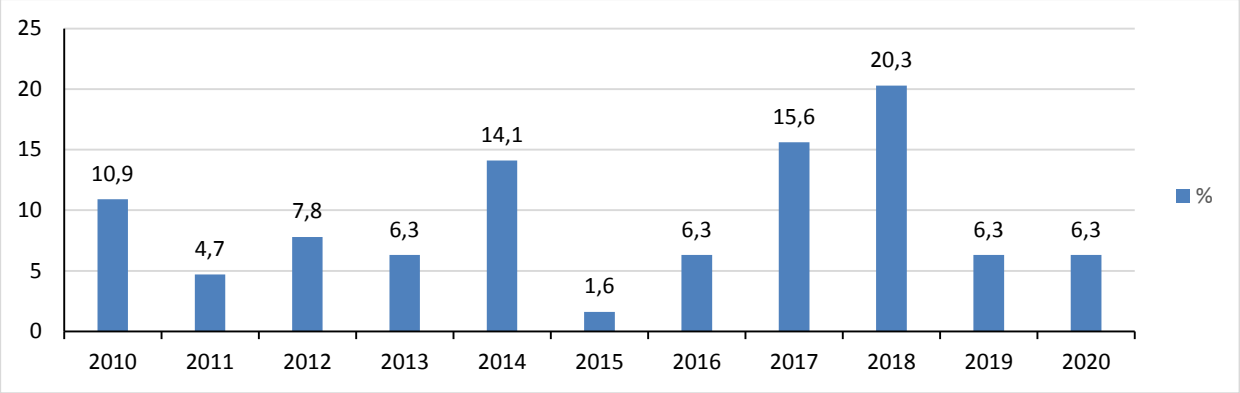


Figure 1. Distribution of the articles published on the concept of activity according to years

When Figure 1 is examined, it is noted that while the number of articles on the concept of activity in mathematics education showed a fluctuating distribution between 2010 and 2015, it started to increase after 2015, but decreased after 2018. Concurrently, it is evident from the analysis that the apex in the volume of articles addressing the concept of activity within the domain of mathematics education occurred in the year 2018, constituting 20.3% of the total corpus, while the nadir was observed in 2015, accounting for a mere 1.6%. Additionally, it is noteworthy that studies published in the years 2013, 2016, 2019, and 2020 manifested an equitable distribution, each contributing 6.3% to the overall dataset.

The data obtained for the question *"What is the distribution of the study subjects of the articles published on the concept of activity in mathematics education?"* are presented in Figure 2.

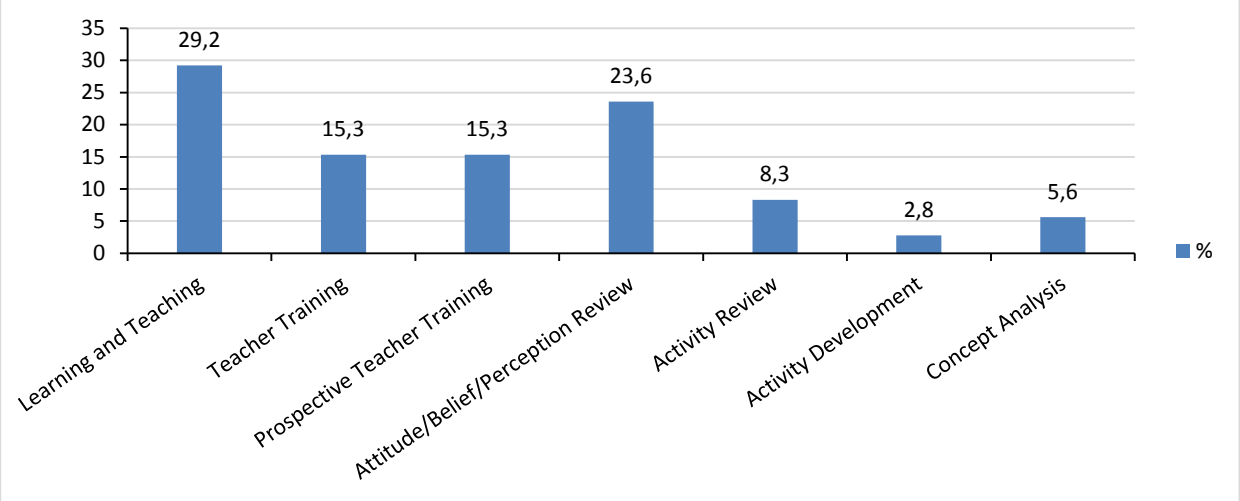


Figure 2. Distribution of the study subjects of the articles published on the concept of activity

When Figure 2 is examined, it is seen that the articles published on the concept of activity in mathematics education between 2010 and 2020 were mostly on learning and teaching with 29.2%, on attitude/belief/perception analysis with 23.6%, on teacher education and pre-service teacher education with 15.3%, on activity analysis with 8.3%, on concept analysis with 5.6% and finally on activity preparation with 2.8%.

The data obtained for the question *"What is the distribution of the field of study of the articles published on the concept of activity in mathematics education?"* are given in Figure 3.

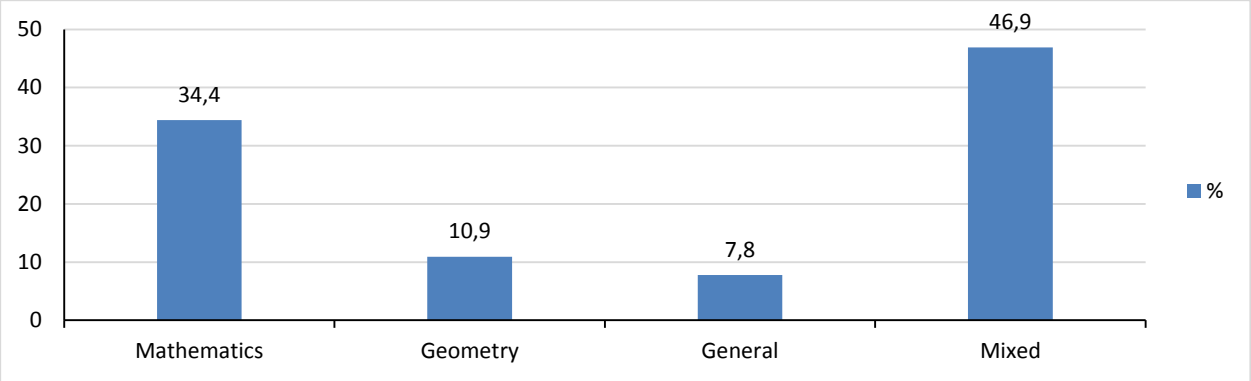


Figure 3. Distribution of the field of study of the articles published on the concept of activity

When Figure 3 is examined, it is seen that a mixed field of mathematics and geometry was the most preferred field of study with a rate of 46.9% in the articles published between 2010 and 2020 on the concept of activity in mathematics education, followed by the field of mathematics with a rate of 34.4%, then geometry with a rate of 10.9%, and finally, an independent general field of study in mathematics and geometry with a rate of 7.8% was the least preferred field of study.

The data obtained for the question *"What is the distribution of the preferred research methods in the articles published on the concept of activity in mathematics education?"* are answered in Figure 4.

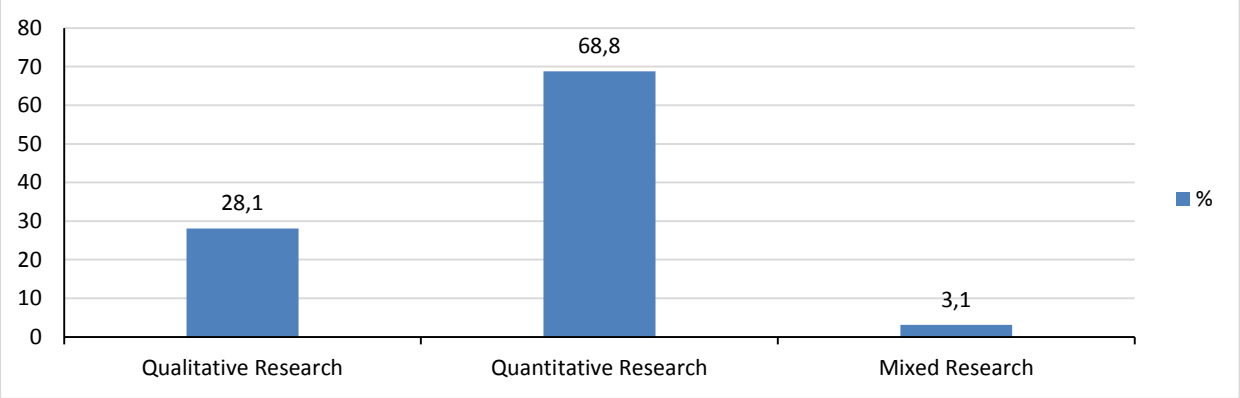


Figure 4. Distribution of the preferred research methods in the articles published on the concept of activity

When Figure 4 is examined, it is seen that the quantitative research method was the most preferred method with a rate of 68.8%, the qualitative research method was preferred with a rate of 28.1% and the mixed research method was the least preferred method with a rate of 3.1% in article studies on the concept of activity in mathematics education.

The data obtained for the question *"What is the overall distribution of the preferred research approaches in the articles published on the concept of activity in mathematics education?"* are presented in Figure 5.

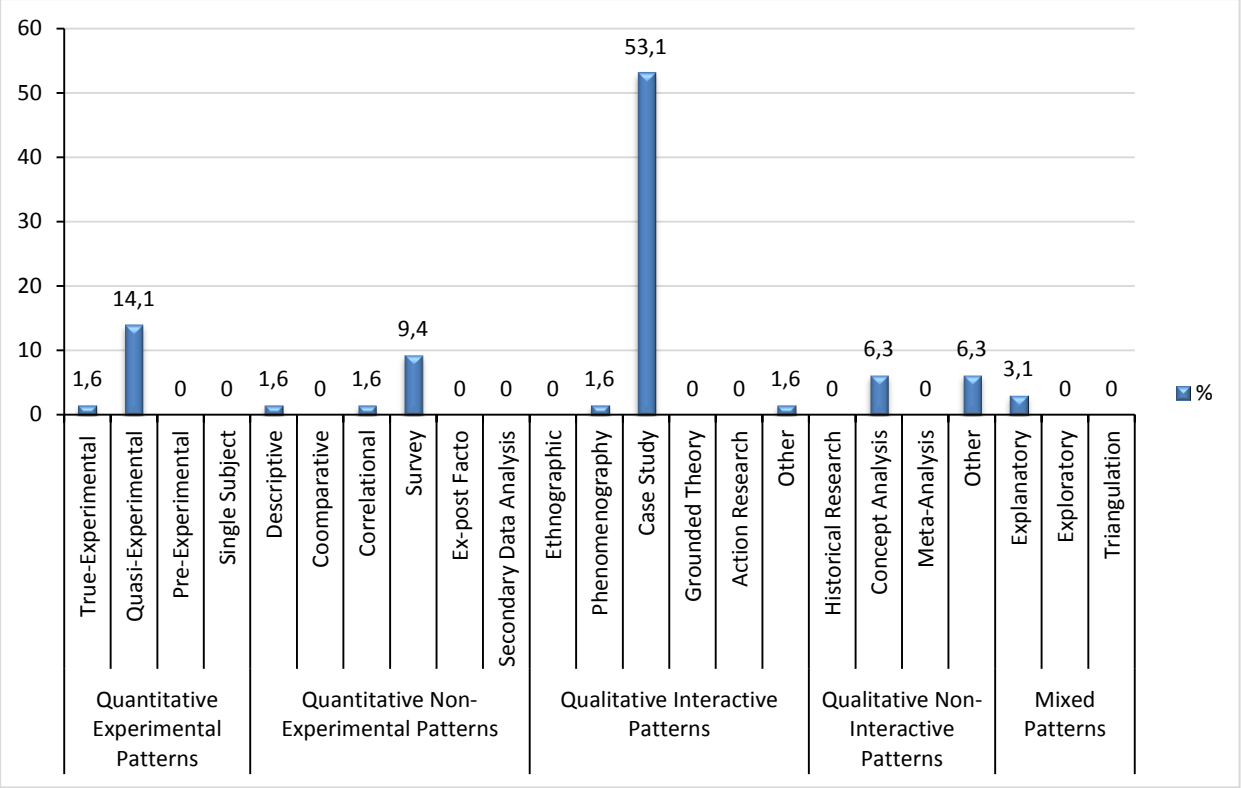


Figure 5. The overall distribution of the preferred research approaches in the articles published on the concept of activity

When Figure 5 is examined, it is seen that among all research approaches in the articles published on the concept of activity in mathematics education between 2010 and 2020, the case study design, which is one of the qualitative research designs, was preferred the most with a rate of 53.1%, followed by the quantitative quasi-experimental design with a rate of 14.1%, the survey design with a rate of 9.4%, and the concept analysis from qualitative research designs and the designs classified as other with a rate of 6.3%. Nonetheless, it is discernible that among the spectrum of mixed research designs, the explanatory paradigm encompassing both quantitative and qualitative facets, constituted a modest proportion, accounting for a mere 3.1% of the total. In contrast, among the quantitative research designs, experimental, descriptive, and correlational designs exhibited relatively diminished utilization, each registering at 1.6%. Similarly, within the domain of qualitative research designs, phenomenological designs, as well as other less frequently employed methodologies, likewise commanded a proportion of 1.6% in the corpus of article studies across the relevant years. Furthermore, it is noted that weak experimental, single-subject, comparative, ex-post facto, and secondary data analysis designs of quantitative research designs, cultural analysis, theory building, action research, historical analysis and meta-analysis designs of qualitative research designs, and exploratory (qualitative-quantitative) and triangulation (quantitative+qualitative) designs of mixed research designs were not preferred at all in these article studies.

The data obtained for the question *"What is the distribution of the preferred quantitative research designs in the articles published on the concept of activity in mathematics education?"* are presented in Figure 6.

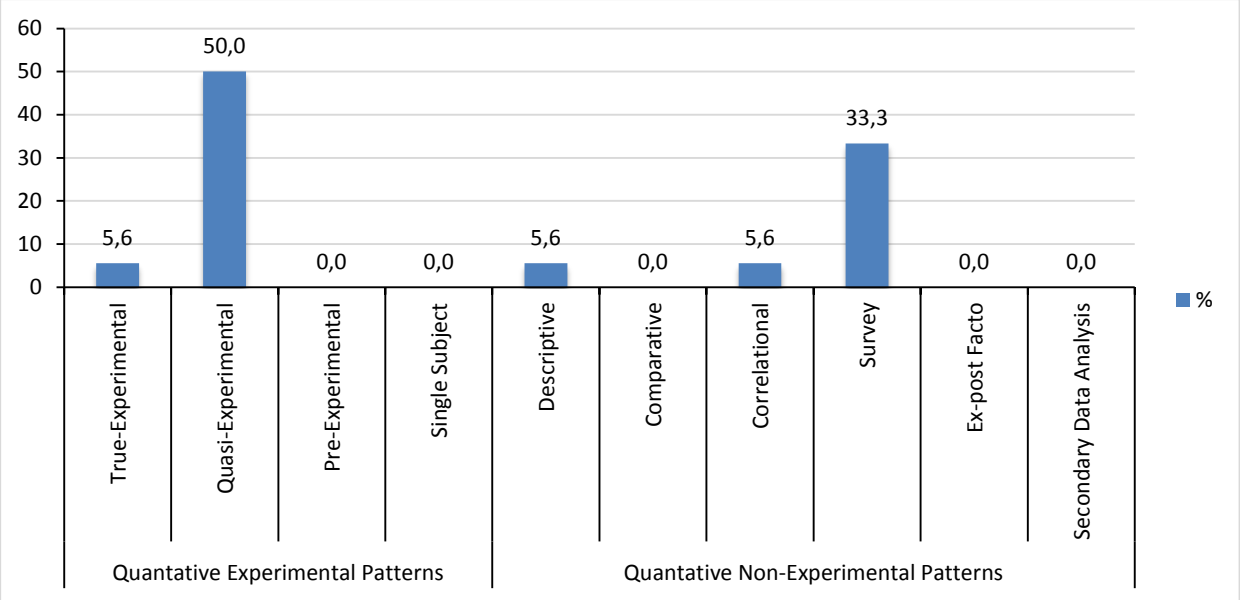


Figure 6. Distribution of the preferred quantitative research designs in the articles published on the concept of activity

When Figure 6 is examined, it is seen that among the quantitative research approaches, experimental designs were preferred the most with a rate of 55.6% total, while non-experimental designs were preferred the least with a rate of 44.5% in total in the article studies published on the concept of activity in mathematics education between 2010 and 2020. Moreover, it is noted that among the quantitative experimental designs, the quasi-experimental design was used more than the experimental design (5.6%) with a rate of 50%, whereas weak experimental and single-subject designs were not used at all. Conversely, Figure 6 reveals that within the realm of quantitative non-experimental designs, the survey design emerged as the favored approach, representing a substantial majority at 33.3%, eclipsing the prevalence of both descriptive (5.6%) and correlational (5.6%) designs. Remarkably, the comparative, ex-post facto, and secondary data analysis designs remained conspicuously absent from the array of methodologies employed, as they were not utilized within the scope of the analyzed article studies.

The data obtained for the question *"What is the distribution of the preferred qualitative research designs in the articles published on the concept of activity in mathematics education?"* are given in Figure 7.

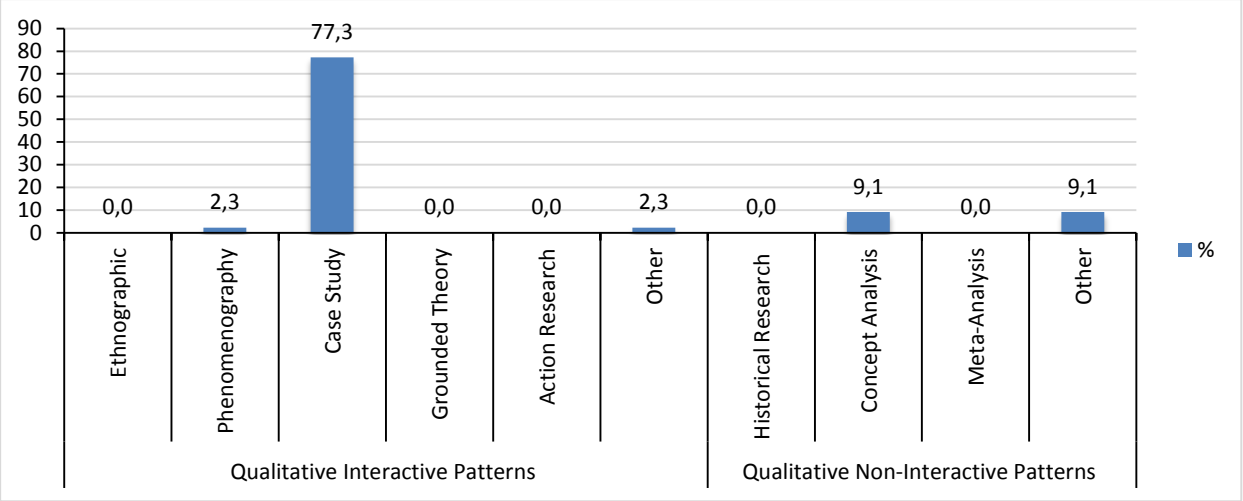


Figure 7. Distribution of the preferred qualitative research designs in the articles published on the concept of activity

When Figure 7 is examined, it is seen that among the qualitative research approaches in the articles published between 2010 and 2020 on the concept of activity in mathematics education, interactive designs were preferred the most with a rate of 81.9% in total, while non-interactive designs were preferred the least with a rate of 18.2% in total. Furthermore, it is noted that the case study design, one of the qualitative interactive designs, was used more than the designs classified as phenomenological (2.3%) and other (teaching experience and design-based) (2.3%) with a rate of 77.3%, whereas cultural analysis, theory building, and action research designs were not used at all. On the other hand, Figure 7 also shows that concept analysis and other (document analysis) designs, which are classified as qualitative non-interactive designs, were less preferred with a rate of 9.1%, and historical and meta-analysis designs were not used at all in the related article studies.

The data obtained for the question *"What is the distribution of the preferred mixed research designs in the articles published on the concept of activity in mathematics education?"* are presented in Figure 8.

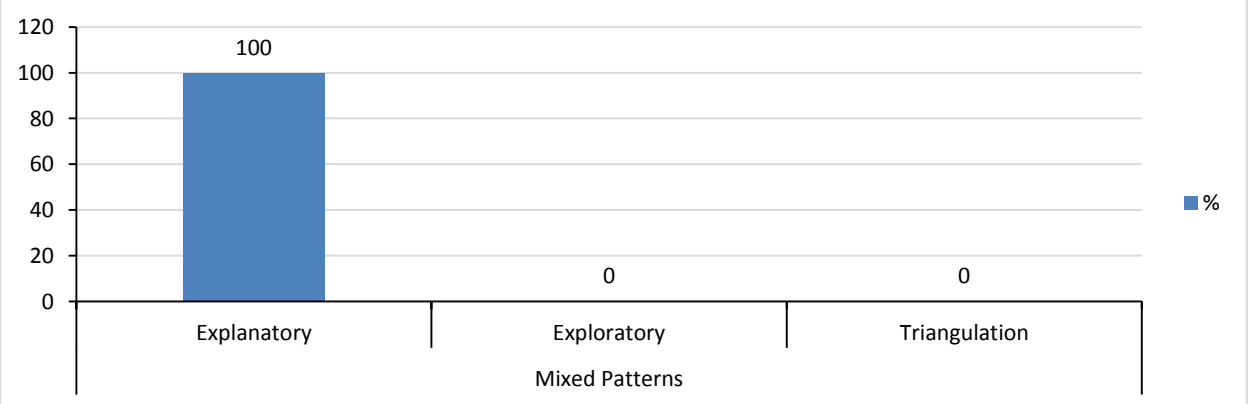


Figure 8. Distribution of the preferred mixed research designs in the articles published on the concept of activity

When Figure 8 is examined, it is seen that the explanatory (quantitative-qualitative) design of mixed research approaches was preferred in all of the article studies published on the concept of activity in mathematics education between 2010 and 2020. On the other hand, it is notable that there were no articles with exploratory (qualitative-quantitative) and triangulation (quantitative+qualitative) designs of the mixed research approaches between the relevant years.

The data obtained for the question *"What is the distribution of data collecting tools used in the articles published on the concept of activity in mathematics education?"* are presented in Figure 9.

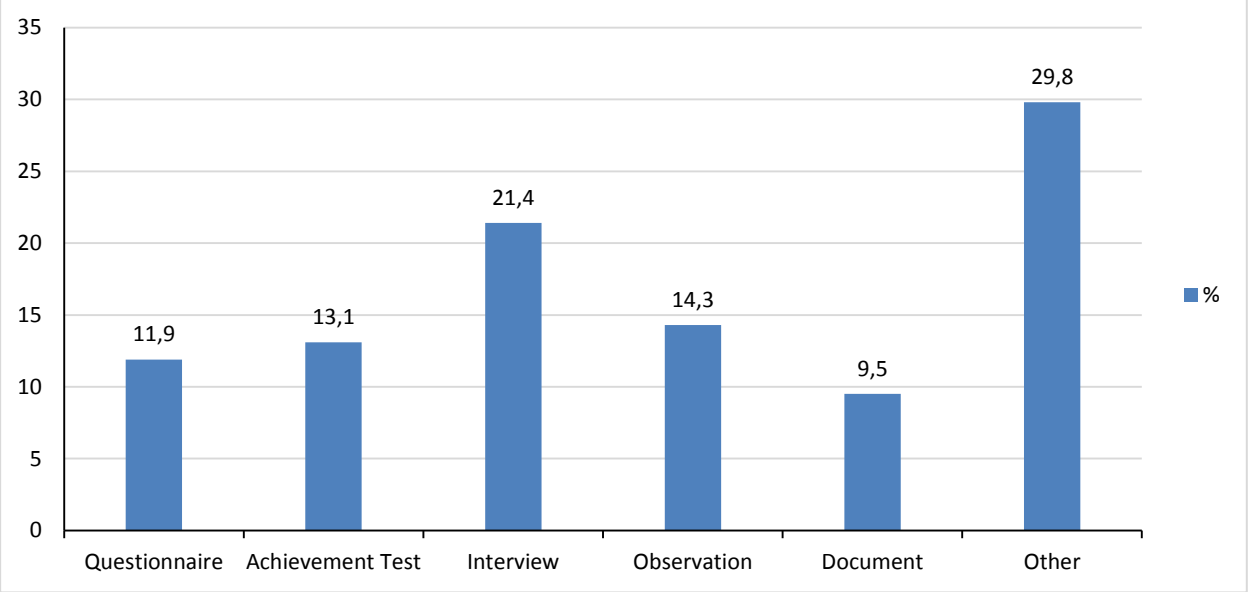


Figure 9. Distribution of data collecting tools used in the articles published on the concept of activity

When Figure 9 is examined, it is seen that interviews were the most used data collecting tool with a rate of 21.4%, followed by observations with a rate of 14.3%, performance tests with a rate of 13.1%, questionnaires with a rate of 11.9% and documents were the least preferred with a rate of 9.5% in the articles published on the concept of activity in mathematics education between 2010 and 2020. In contrast, it is noteworthy that the category denoted as "other" within the classification of data collection instruments, encompassing items such as teacher notes, student journals, activity sheets, reflection sheets, worksheets, evaluation rubrics, as well as studies devoid of explicitly specified data collection tools, exhibited a discernible prevalence, accounting for a significant portion at 29.8% within the context of the analyzed article studies.

The data obtained for the question *"What is the distribution of the number of different data collecting tools used together in the articles published on the concept of activity in mathematics education?"* are given in Figure 10.

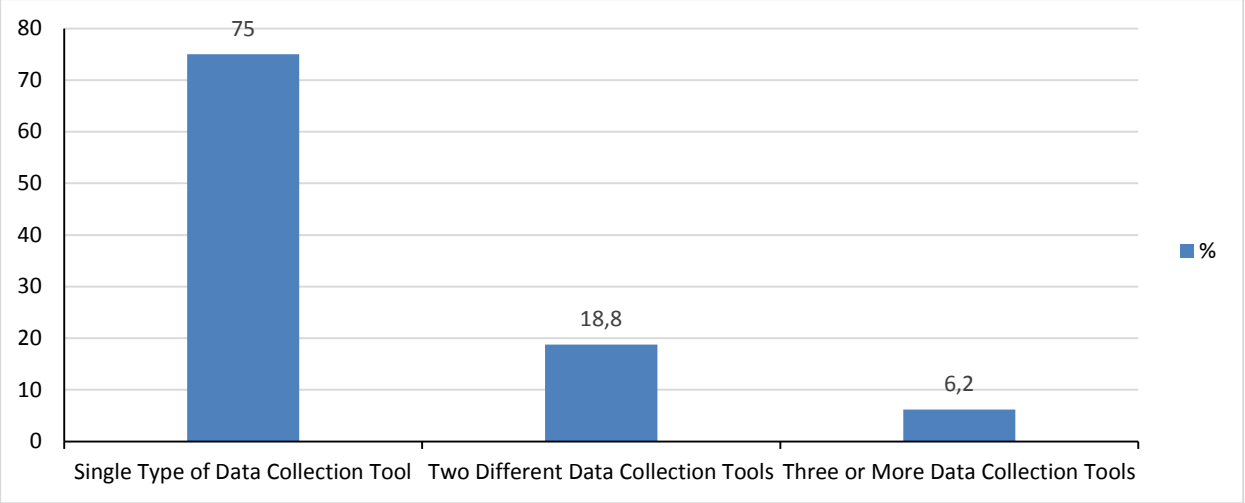


Figure 10. Distribution of the number of different data collecting tools used together in the articles published on the concept of activity

When Figure 10 is examined, it is seen that 75% of the articles published between 2010 and 2020 on the concept of activity in mathematics education used one data collecting tool, 18.8% used two data collecting tools, and 6.2% used three or more data collecting tools.

The data obtained for the question *" What is the distribution of the sample types studied in the articles published on the concept of activity in mathematics education?"* are shown in Figure 11.

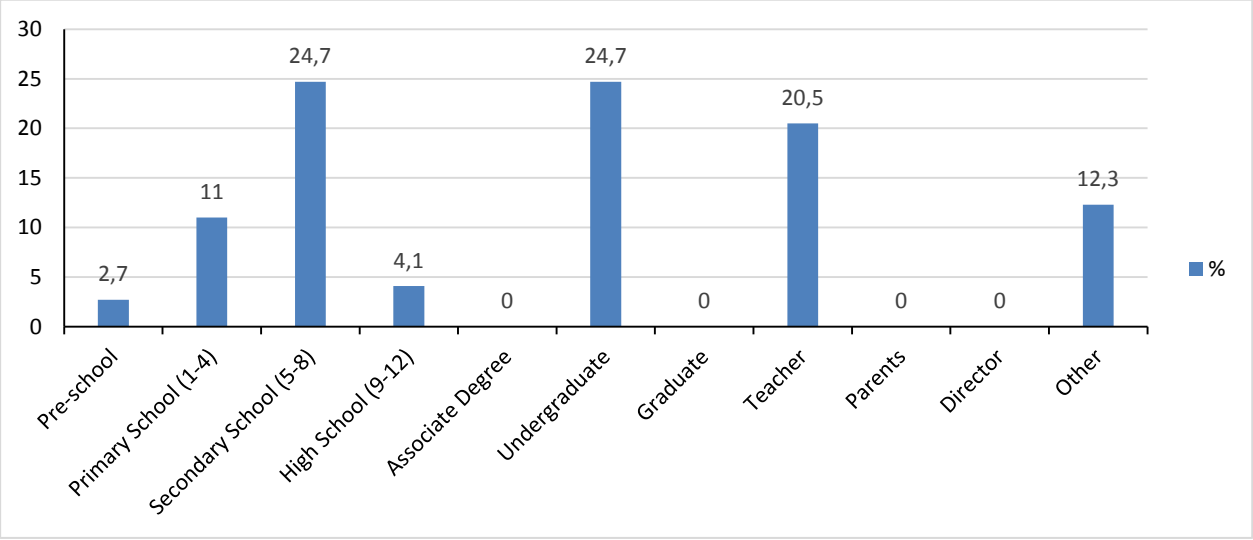


Figure 11. Distribution of the sample types studied in the articles published on the concept of activity

When Figure 11 is examined, it is seen that the articles published between 2010 and 2020 on the concept of activity in mathematics education mostly focused on middle school (5-8) and undergraduate students with a rate of 24.7% and the least on preschool students with a rate of 2.7%. Furthermore, it bears significance to highlight that a

considerable proportion of the published articles, specifically 20.5%, were conducted in collaboration with educators, while 11% were undertaken in the context of primary school students (grades 1-4), and a comparatively smaller fraction, totaling 4.1%, pertained to research involving secondary school students (grades 9-12). On the other hand, it is observed that no articles were conducted with associate and graduate students, parents, and administrators. Finally, Figure 11 shows that the rate of article studies with sample groups classified as other (documents and studies without samples) is 12.3%.

The data obtained for the question *" What is the distribution of the sample sizes of the articles published on the concept of activity in mathematics education?"* are given in Figure 12.

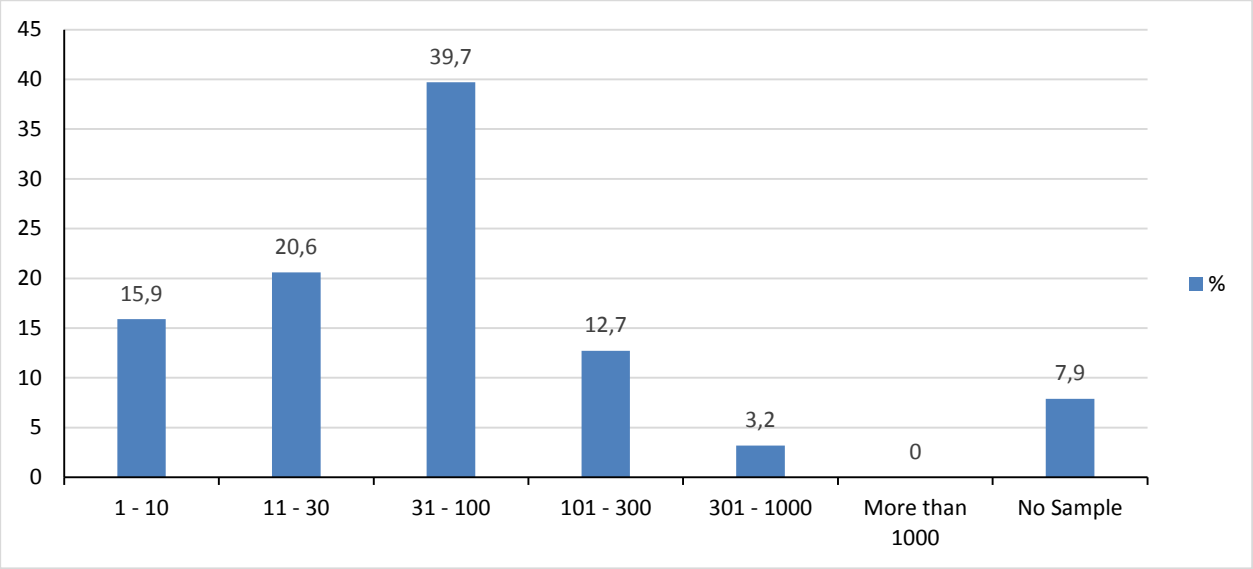


Figure 12. Distribution of the sample sizes of the articles published on the concept of activity

When Figure 12 is examined, it is seen that the articles published between 2010 and 2020 on the concept of activity in mathematics education were studied with a sample size between 31-100 with a rate of 39.7% and 301-1000 with a rate of 3.2%, on the other hand, a sample size between 11-30 with a rate of 20.6%, 1-10 with a rate of 15.9% and 101-300 with a rate of 12.7%. Moreover, it is salient to observe that a discernable portion, specifically 7.9%, of the articles published during the pertinent timeframe did not engage in research involving any specified sample group. Remarkably, within the corpus of analyzed articles, there were no instances of research investigations conducted with sample groups exceeding a magnitude of 1000 individuals.

The data obtained for the question *" What is the distribution of the data analysis methods used in the articles published on the concept of activity in mathematics education?"* are shown in Figure 13.

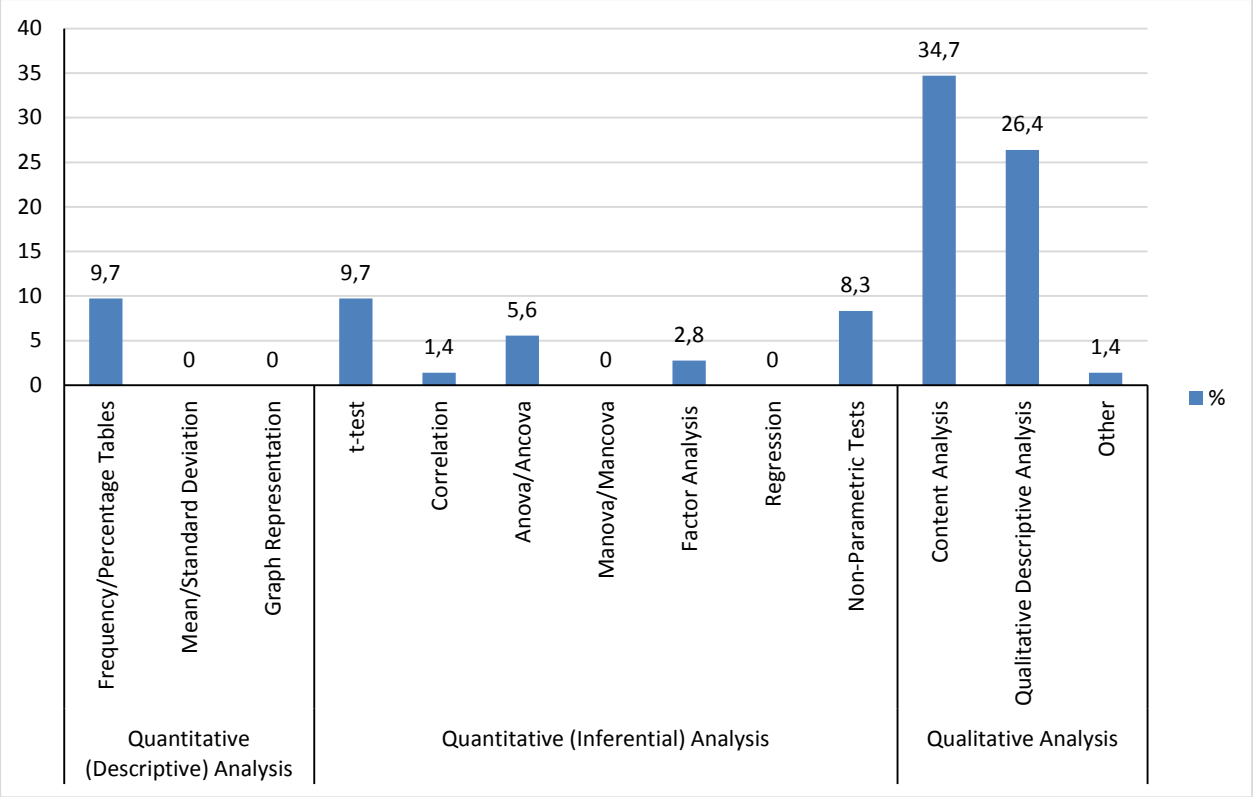


Figure 13. Distribution of the data analysis methods used in the articles published on the concept of activity

When Figure 13 is examined, it is seen that content analysis, one of the qualitative data analysis methods, was used the most with a rate of 34.7%, and correlation analysis, one of the quantitative data analysis methods were used the least with a very small rate of 1.4% among all data analysis methods in the articles published between 2010 and 2020 on the concept of activity in mathematics education. Conversely, it is discerned that within the compendium of published thesis studies, a substantive portion, comprising 26.4%, adopted the qualitative descriptive analysis as the preferred methodology among the spectrum of qualitative data analysis methods. Furthermore, among the quantitative data analysis methods employed, 9.7% of studies harnessed frequency/percentage tables and t-tests, while 8.3% resorted to non-parametric tests. A smaller cohort, constituting 5.6%, opted for Anova/Ancova analysis, and a mere 2.8% implemented factor analysis as their chosen analytical approach. Meanwhile, it is noted that there were no articles in which mean/standard deviation, graphical representation, Manova/Mancova analyses, and regression analyses were used among the quantitative data analysis methods between the relevant years.

The data obtained for the question *" What is the distribution of the number of data analysis methods used in the articles published with the concept of activity in mathematics education?"* are shown in Figure 14.

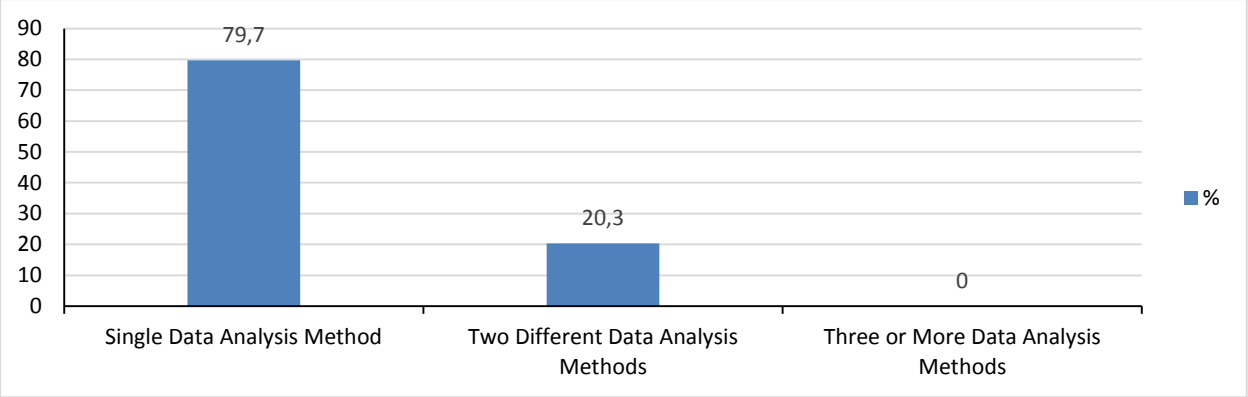


Figure 14. Distribution of the number of data analysis methods used in the articles published with the concept of activity

When Figure 14 is examined, it is seen that 79.7% of the articles published between 2010 and 2020 on the concept of activity in mathematics education used one data analysis method, and 20.3% used two data analysis methods. Nevertheless, it is salient to observe that the articles disseminated during the pertinent time frame refrained from employing a combination of three or more distinct data analysis methodologies in their research endeavors.

The data obtained for the question *" What is the distribution of the data analysis methods used in the articles published on the concept of activity in mathematics education according to years?"* is presented in Figure 15.

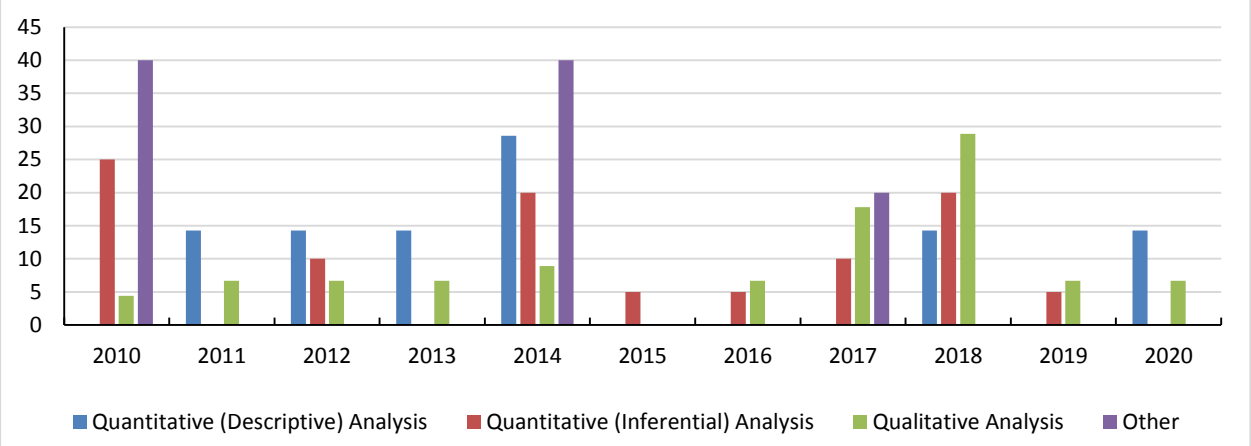


Figure 15. Distribution of the data analysis methods used in the articles published on the concept of activity

When Figure 15 is examined, it is seen that the distribution of the data analysis methods used in the articles published on the concept of activity in mathematics education according to years is irregular in terms of quantitative (predictive), quantitative (descriptive), and qualitative data analysis. Furthermore, it is observed that quantitative (predictive) data analysis methods were most commonly used in 2010, quantitative (descriptive) data analysis methods in 2014, and qualitative data analysis methods in 2018. Furthermore, it is noted that data analysis methods categorized as others were used more in the articles published in 2010 and 2014.

Discussion, Conclusion & Suggestions

This study, conducted to determine the tendencies of the articles published on the concept of activity in mathematics education in Türkiye, examined the related studies between 2010 and 2020 one by one and attempted to offer recommendations based on the results obtained.

The study results show that the number of published articles increased steadily after 2015 (Figure 1) and this increase can be attributed to the centralization of the activity-based teaching approach in the updated curricula. Also, it can be said that the studies published on the concept of activity in mathematics education have tended to decrease in recent years. It is found that most of the articles published on the concept of activity in mathematics education in Türkiye are about learning and teaching (Figure 2). It is believed that increasing the number of studies conducted with teachers and future teachers, which will provide guidance for the implementation of activities in the teaching process, and the results of these studies will contribute significantly to the elimination of deficiencies in practice. As a matter of fact, there are many studies in the literature indicating that teachers and pre-service teachers have difficulties in activity preparation and implementation processes (Duru & Korkmaz, 2010; Özgen & Alkan, 2011; Öztürk, 2016; Uğurel et al., 2010). It is concluded that in the article studies related to the concept of activity (Figure 3), mixed studies in which mathematics and geometry are included together are preferred the most. Again, it has been observed that the number of articles published in the field of mathematics is considerably higher than the number of articles published in the field of geometry. The higher number of studies in the field of mathematics compared to the field of geometry in the articles published on the concept of activity indicates that the literature gaps in the field of geometry are quite high. Çiltaş et al. (2012) emphasized that there are few studies on geometry in mathematics education. In contrast, İlhan (2011) stated that there are quite a lot of thesis studies in the field of geometry. These findings suggest a need for future studies on the concept of activity to encompass a greater emphasis on geometry.

In the articles published in mathematics education in Türkiye (Figure 4), it is observed that quantitative research was preferred the most, whereas qualitative research was preferred as a secondary approach. Selçuk et al. (2014) found that the quantitative research methods were the most commonly preferred in their study. Again, Çiltaş et al. (2012) stated that quantitative research methods were used more in the examined article studies. On the other hand, mixed studies (Creswell, 2003), in which qualitative and quantitative study data are addressed in a single study and different data sources are transformed into each other and verified, were rarely used in article studies. Ulutaş and Ubuz (2008) stated that there are few mixed studies in Türkiye. It is also believed that increasing the number of studies using mixed research methods in the studies to be conducted on the concept of activity in mathematics education will enrich the research on this subject in terms of methodology. Moreover, it has been observed that qualitative interactive designs were mostly preferred in article studies related to the concept of activity (Figure 5). It was also determined in Akkuş and Darendeli's (2020) study that qualitative research was more frequent. However, it is determined that mixed research designs were used the least in the published article studies.

In the articles published in Türkiye on the concept of activity in mathematics education, the quasi-experimental design, one of the quantitative experimental design, was preferred the most (Figure 6). It is also observed that survey design was the most preferred among quantitative non-experimental designs in published article studies. Yaşar and

Papatğa (2015) concluded that experimental studies were more preferred in the studies conducted. Meanwhile, in the articles published on the concept of activity, the case study was the most preferred qualitative interactive design (Figure 7). This aligns with the findings of Yıldız and Yenilmez (2019). Baki et al. (2011) stated in their study that experimental studies were especially preferred in theses, but qualitative studies, primarily case studies, began to gain prominence as the belief that the mathematics teaching and learning process cannot be solely explained by numbers or symbols grew. It has been determined that the explanatory (quantitative-qualitative) mixed design was the most favored among mixed research designs in the articles published on the concept of activity (Figure 8). However, it has been observed that exploratory (qualitative-quantitative) and triangulation (quantitative+qualitative) mixed designs were not preferred in article studies. It is considered that the use of research designs (experimental, weak experimental, single-subject, comparative, correlational, ex-post facto, secondary data analysis, cultural analysis, phenomenology, theory building, historical analysis, concept analysis, meta-analysis, mixed designs, etc.) that are less preferred or not preferred at all in the article studies examined within the scope of the research will contribute to revealing different dimensions of the research topic related to the studies to be conducted on the concept of activity.

It is determined that the interview was the most commonly used data collecting tool in the articles published on the concept of activity (Figure 9). İncikabı et al. (2017) stated that the interview data collecting tool was mostly used in qualitative research on mathematics education. Conversely, documents were the least preferred as a data collecting tool. When the number of data collecting tools used in the articles published on the concept of activity in mathematics education was examined (Figure 10), it was found that only one data collecting tool was preferred. Thus, researchers are recommended to include more than one data collection tool in their studies to achieve higher-quality results and increase the reliability of the study data.

It has been determined that the published article studies (Figure 11) were mostly conducted with secondary school (5-8) and undergraduate students. In this regard, Albayrak (2017) emphasized that working with undergraduate students is more preferred due to the difficulty of obtaining the necessary study permits from authorities for studies involving the secondary school group. İncikabı et al. (2017) stated that the most frequently studied group was secondary school students, as compared to the studies conducted with preschool, primary and secondary school students. It is observed that graduate education programs are not preferred as the sample group in the article studies on the concept of activity in mathematics education. Given this situation, it is recommended that future mathematics educators conduct studies with graduate students as they are the source of science. Meanwhile, no studies have been found to be conducted with associate degree students, parents, and administrators in the articles published on the concept of activity. Nevertheless, the belief that conducting studies with administrators and parents would be beneficial for mathematics teaching has been emphasized in many studies (Çiltaş et al., 2012; Selçuk et al., 2014). It has been determined that most of the articles published in Türkiye on the concept of activity in mathematics education were conducted with a sample group between 31-100 people (Figure 12). This is similar to many studies (Tatar & Tatar, 2006; Ulutaş & Ubuz, 2008; Çiltaş et al., 2012). However, Erdoğmuş (2009) emphasized in his study that experimental studies are mostly preferred among quantitative methods in theses, and in this case, the sample should be large in order to collect more data in less time. Considering this, it is recommended to increase the sample size to obtain more data and more reliable results.

It is observed that content analysis and qualitative descriptive analysis, among the qualitative analysis methods, were predominantly used in the article studies published on the concept of activity (Figure 13). Yıldız and Yenilmez (2019) mentioned that they employed content analysis and qualitative descriptive analysis as data analysis methods in their study, which aligns with the findings of this research. It is suggested that researchers consider evaluating different statistical analysis methods in conjunction with qualitative analysis methods. In the articles published on the concept of activity in mathematics education in Türkiye (Figure 14), it has been determined that the single data analysis method was the most commonly used. Albayrak (2017) observed that the single data analysis method was more preferred in published articles, while three or more data analysis methods were more preferred in theses. However, it has been noted that three or more data analysis methods were not used at all in the article studies. Meanwhile, it has been determined that the qualitative data analysis method was used the most in 2018 (Figure 15) in article studies published on the concept of activity. Similarly, Tatar et al. (2013) observed that there were more quantitative and qualitative studies in their review.

It is believed that the results of this study are valuable in terms of showing the study tendencies related to the concept of activity in mathematics education and thus will be useful in guiding future studies. In this regard, this study is expected to provide ideas to researchers who will conduct studies on the concept of activity in mathematics education. On the other hand, it is expected that the use of the content analysis method in the study will contribute to the studies to be conducted with this method in different fields of study.

It should be noted that this research only covers the studies accessed through DergiPark. Following the same reasoning, it can be said that examining articles published in different databases and in different years in future studies will provide a more comprehensive result in demonstrating the development and diversification of studies on the concept of activity in mathematics education in Türkiye. Furthermore, it is of great importance to conduct such studies at regular intervals to assess the state of research on the concept of activity in mathematics education in Türkiye as a whole.

Ethic

According to the decision of Kırıkkale University Social and Human Sciences Research Ethics Committee, dated 21/12/2021 and numbered 64945, this study received ethical approval.

Author Contributions

This study was produced from the master thesis prepared by the first author, under the supervision of the second author.

Conflict of Interest

The authors declare that they have no conflict of interest.

Funding

No scholarships or payments have been received from any institution for this article.

References

Akkuş, R., & Darendeli D. (2020). Türkiye'de matematikte öğrenme amaçlı yazma üzerine araştırma eğilimleri: 2005 ile 2020 yılları arası [Research Trends on Writing-to-Learn in Mathematics in Turkey: between 2005 and 2020]. *International Journal of Educational Studies in Mathematics*, *7*(1), 1-13. Retrieved from https://dergipark.org.tr/en/pub/ijesim/issue/53193/680133

Albayrak, E. (2017). *Türkiye'de matematik eğitimi alanında yayınlanan matematiksel model ve modelleme araştırmalarının betimsel içerik analizi* [Descriptive content analysis of mathematical modeling research published in the field of mathematics education in Turkey] [Master's thesis, Atatürk University]. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Baki, A., Güven, B., Karataş, İ., Akkan, Y., & Çakıroğlu Ü. (2011). Türkiye'de matematik eğitimi araştırmalarındaki eğilimler:1988 ile 2007 yılları arası [Trends in Turkish Mathematics Education Research: From 1998 to 2007]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi* [H.U. Journal of Education], *(40)*, 57-68. Retrieved from http://www.efdergi.hacettepe.edu.tr/shw_artcl-394.html

Baykul, Y. (2005). *İlköğretimde matematik öğretimi (1-5. sınıflar)* (8. Baskı) [Mathematics teaching in primary education (grades 1-5) (8th Edition)]. Pegem Akademi Yayıncılık.

Çalık, M., & Sözbilir, M. (2014). İçerik analizinin parametreleri [Parameters of content analysis]. *Eğitim ve Bilim* [Education and Science], *39*(174), 33-38. http://dx.doi.org/10.15390/EB.2014.3412

Çiltaş, A., Güler, G., & Sözbilir, M. (2012). Türkiye'de matematik eğitimi araştırmaları: Bir içerik analizi çalışması [Mathematics education research in Türkiye: A content analysis study]. *Kuram ve Uygulamada Eğitim Bilimleri* [Educational Sciences: Theory & Practice], *12*(1), 565-580. Retrieved from https://www.idealonline.com.tr/IdealOnline/lookAtPublications/paperDetail.xhtml?uId=1922

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th Edition). Routledge.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Sage Publications.

Dinçer, S. (2018). Eğitim bilimleri araştırmalarında içerik analizi: Meta-analiz, meta- sentez, betimsel içerik analizi [Content analysis in scientific research: Meta-analysis, meta-synthesis, and descriptive content analysis]. *Bartın Üniversitesi Eğitim Fakültesi Dergisi* [Bartın University Journal of Faculty of Education], *7*(1),176-190. https://doi.org/10.14686/buefad.363159

Doruk, K.B., & Umay A. (2011). Matematiği günlük hayata transfer etmede matematiksel modellemenin etkisi [The effect of mathematical modeling on transferring mathematics into daily life]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi* [H.U. Journal of Education], *41*, 124-135. Retrieved from http://www.efdergi.hacettepe.edu.tr/shw_artcl-685.html

Duru, A., & Korkmaz, H. (2010). Öğretmenlerin yeni matematik programı hakkındaki görüşleri ve program değişim sürecinde karşılaşılan zorluklar [Teachers' views about a new mathematics curriculum and difficulties

encountering curriculum change]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi* [H.U. Journal of Education], *38*, 67-81. Retrieved from http://www.efdergi.hacettepe.edu.tr/shw_artcl-444.html

Erdoğmuş, F.U. (2009). *Research trends in CEIT MS and PhD theses in Turkey: A content analysis* [Master's thesis, Middle East Technical University]. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Fraenkel, J.R., Wallen, N.E., & Hyun, H.H. (2012). *How to design and evaluate search in education* (8th Edition). McGraw-Hill

Henningsen, M., & Stein, M.K. (1997). Mathematical tasks and student cognition: Classroom-based factors that support and inhibit high-level mathematical thinking and reasoning. *Journal for Research in Mathematics Education, 28*(5), 524-549. https://doi.org/10.5951/jresematheduc.28.5.0524

İlhan, A. (2011*). Matematik eğitimi araştırmalarında tematik ve metodolojik eğilimler: Uluslararası bir çözümleme* [*Thematic and methodological trends in mathematics education researches: An international analysis*] [Master's thesis, Eskişehir Osmangazi University]. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

İncikabı, L., Serin, M.K., Korkmaz S., & İncikabı, S. (2017). Türkiye'de 2009-2014 yılları arasında yayımlanan matematik eğitimi çalışmaları üzerine bir araştırma [A research on mathematics education studies published between 2009-2014 in Turkey]. *Adıyaman Üniversitesi Eğitim Bilimleri Dergisi* [Adıyaman University Journal of Educational Sciences], *7*(1), 1-19. https://doi.org/10.17984/adyuebd.325368

Korkmaz, E., & Korkmaz, C. (2017). EBOB-EKOK konusunun gerçekçi matematik eğitimi etkinlikleriyle öğretiminin başarı ve tutuma etkisi [EBOB –EKOK subject effect to success and attitude with teaching realistic mathematics education activities]. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* [Hatay Mustafa Kemal University Journal of Social Sciences Institute], *14*(39), 504-523. Retrieved from https://dergipark.org.tr/en/pub/mkusbed/issue/31632/311317

Korkmaz, E., & Tutak, T. (2017). Dönüşüm geometrisi konularının gerçekçi matematik eğitimi etkinlikleriyle işlenmesinin öğrenci başarısına ve matematik tutumuna etkisi [The effects on student success and mathematics attitude of teaching the subject of transitional geometry with realistic mathematics education activities]. *Disiplinlerarası Eğitim Araştırmaları Dergisi* [Journal of Interdisciplinary Educational Research]**,** *1*(2), 30-42. Retrieved from https://dergipark.org.tr/tr/pub/jier/issue/33877/343106

Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis* (Second Edition). SAGE Publications.

Millî Eğitim Bakanlığı [MEB] (2011). *Ortaöğretim matematik dersi 9-12 sınıflar öğretim program* [Secondary school mathematics course 9-12 grades curriculum]. Talim ve Terbiye Kurulu Başkanlığı.

Millî Eğitim Bakanlığı [MEB] (2018). *Matematik dersi öğretim programı 1-8 sınıflar* [Mathematics curriculum for grades 1-8].

National Council for Teachers of Mathematics. (2000). *Principles and standards for school mathematics.* Author.

Ocak, G., & Dönmez, S. (2010). İlköğretim 4. ve 5. sınıf öğrencilerinin matematik etkinliklerine yönelik tutum ölçeği geliştirme [The scale of attitude directed towards the application of mathematical activities of the 4th and

5th grade primary school students]. *Kuramsal Eğitim Bilim* [Journal of Theoretical Educational Science], *3*(2), 69-82. Retrieved from http://www.acikerisim.aku.edu.tr/xmlui/handle/11630/5365

Özgen, K., & Alkan, H. (2011). Matematik öğretmen adaylarının öğrenme stillerine göre etkinliklere yönelik tercih ve görüşlerinin incelenmesi [An analysis of pre-service mathematics teachers' preferences and views on activities in relation to their learning styles]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi* [H.U. Journal of Education], *41, 325-338*. Retrieved from http://www.efdergi.hacettepe.edu.tr/shw_artcl-703.html

Öztürk, B., & Öztürk, F. (2020). Sınıf öğretmeni adaylarının etkinlik kavramına yönelik görüşlerinin incelenmesi [Investigation of the views of prospective elementary teachers on the concept of activity]. *Kastamonu Eğitim Fakültesi Dergisi* [Kastamonu Education Journal], *28*(5), 2009-2018. Retrieved from https://dergipark.org.tr/en/pub/kefdergi/issue/56970/722439

Öztürk, F. (2016). *İlköğretim matematik öğretmeni adaylarının etkinlik hazırlama ve uygulama süreçlerinin incelenmesi* [*A study on the processes of activity design and implementation by prospective primary mathematics teachers*] [Doctoral dissertation, Atatürk University]. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Öztürk, F., & Öztürk, B. (2016). Fen bilgisi öğretmeni adaylarının etkinlik kavramına ilişkin görüşlerinin incelenmesi [An investigation into the views of preservice science teachers on the concept of activity*]*. *EKEV Akademi Dergisi* [EKEV Academy Journal], *20*(68), 101-115. Retrieved from https://dergipark.org.tr/en/pub/sosekev/issue/71359/1147345

Selçuk, Z., Palancı, M., Kandemir, M., & Dündar, H. (2014). Eğitim ve bilim dergisinde yayınlanan araştırmaların eğilimleri: İçerik analizi [Tendencies of the researches published in education and science journal: content analysis]. *Eğitim ve Bilim Dergisi* [Education and Science], *39*(173), 430-453. Retrieved from http://egitimvebilim.ted.org.tr/index.php/EB/article/view/3278

Sozbilir, M., Kutu, H., & Yaşar, M.D. (2012). Science education research in Turkey: A content analysis of selected features of published papers. In D. Jorde & J. Dillon (Eds.), *Science education research and practice in Europe: Retrospective and prospective* (pp. 341-374). Sense Publishers.

Stein, M.K., Grover, B.W., & Henningsen, M. (1996). Building student capacity for mathematical thinking and reasoning: An analysis of mathematical tasks used in reform classrooms. *American Educational Research Journal Summer, 33*(2), 455-488. https://doi.org/10.3102/00028312033002455

Suri, H., & Clarke, D. (2009). Advancements in research synthesis methods: From a methodological lyinc lusive perspective. *Review of Educational Research, 79*(1), 395-430. https://doi.org/10.3102/0034654308326349

Tatar, E., & Tatar, E. (2008). Fen bilimleri ve matematik eğitimi araştırmalarının analizi II: Anahtar kelimeler [Analysis of science and mathematics education articles published ın Turkey-I: Keywords]. *İnönü Üniversitesi Eğitim Fakültesi Dergisi* [İnönü University Journal of the Faculty of Education], *9*(16), 89-103. Retrieved from https://dergipark.org.tr/en/pub/inuefd/issue/8707/108716

Tatar, E., Kağızmanlı, T.B., & Akkaya, A. (2013). Türkiye'deki teknoloji destekli matematik eğitimi araştırmalarının içerik analizi [Content analysis of the researches on technology-assisted mathematics instruction in Turkey].

Buca Eğitim Fakültesi Dergisi [Journal of Buca Faculty of Education], *35*, 33-45. Retrieved from https://dergipark.org.tr/en/pub/deubefd/issue/25114/265146

Uğurel, I., Bukova-Güzel, E., & Kula, S. (2010). Matematik öğretmenlerinin öğrenme etkinlikleri hakkındaki görüş ve deneyimleri. *Buca Eğitim Fakültesi Dergisi* [Journal of Buca Faculty of Education], *28*, 103-123. Retrieved from https://dergipark.org.tr/en/pub/deubefd/issue/25125/265299

Ulutaş, F., & Ubuz, B. (2008). Matematik eğitiminde araştırmalar ve eğilimler: 2000 ile 2006 yılları arası [Research and trends in mathematics education: 2000 to 2006]. *İlköğretim Online* [Elementary Education Online], *7*(3), 614-626. Retrieved from https://dergipark.org.tr/en/pub/ilkonline/issue/8600/107083

Yaşar, Ş., & Papatğa, E. (2015). İlkokul matematik derslerine yönelik yapılan lisansüstü tezlerin incelenmesi [The analysis of the graduate theses related to mathematics courses]. *Trakya Eğitim Dergisi* [Trakya Journal of Education], *5*(2), 113-124. Retrieved from https://dergipark.org.tr/en/pub/trkefd/issue/21482/230218

Yıldırım, A., & Şimşek, H. (2006). *Sosyal bilimlerde nitel araştırma yöntemleri* (6. Baskı) [Qualitative research methods in the social sciences (6th Edition)]. Seçkin Yayıncılık.

Yıldız, Ş., & Yenilmez, K. (2019). Matematiksel modelleme ile ilgili lisansüstü tezlerin tematik içerik analizi [Thematic content analysis of postgraduate theses on mathematical modeling]. *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi* [Eskişehir Osmangazi University Journal of Social Sciences], *20*(Özel sayı), 1-22. Retrieved from https://dergipark.org.tr/en/pub/ogusbd/article/548180