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Research Article

Examining the Relationship Between Early Childhood Teacher Candidates' Empathic Tendencies and Social Problem-Solving Skills

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Abstract:

The purpose of this study was to examine the relationship between early childhood teacher candidates' empathic tendencies and social problem-solving skills. A total of 187 teacher candidates studying in the department of Early Childhood Education at Duzce University participated in this study. The relational research model, a quantitative research method, was used. The data of this study were collected through a personal information form, the Empathic Tendency Scale, and the Social Problem-Solving Inventory (SPÇE-SF). The researchers analyzed the data using Pearson Correlation and one-way ANOVA with the SPSS program. According to the findings of the study, the empathic tendency levels and social problem-solving skills of the early childhood teacher candidates participating in the research are at moderate levels. In addition, there was a moderate positive relationship between participants' empathic tendencies and social problem-solving skills. Finally, it is seen that the empathic tendencies of the participants do not differ according to personal data such as gender, educational level, mother's and father's educational level, family type, family attitude, number of siblings, and birth order. The participants' social problems-solving skills differed only by gender and number of siblings.

Keywords: Early childhood education, early childhood teacher candidates, empathic tendency, social problem-solving skills

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INTRODUCTION

The fundamental human need for interpersonal connections and relationships is a pervasive aspect of an individual's social existence across various stages of life. Nevertheless, the process of communication with others throughout one's lifetime can be fraught with numerous challenges and complexities. Responses to these challenges can yield both positive and negative outcomes in an individual's communication endeavors. Bingham (2004) characterizes problem-solving as the process of surmounting challenges in achieving a particular objective, whereas social problem-solving pertains to the capacity to identify interpersonal conflicts and select effective and adaptive strategies to resolve these specific problematic situations (D'Zurilla & Nezu, 1990). It is important to note that there is no consistent and universally accepted definition of this concept in the literature, and various models have been proposed to delineate the constituent elements that underpin socially adept behavior (Crick & Dodge, 1994; Dodge, 1986). All of these models share a common thread, emphasizing that social problem-solving encompasses three core facets: (1) perceptual skills, involving the ability to discern salient information related to the interaction partner, such as their facial expressions conveying emotions; (2) cognitive components, which involve comprehending the perspective of the other party involved; and (3) performance-based processing steps (Tse & Bond, 2004). This process may involve the generation of potential alternative solutions to a given problem, the careful selection of the most appropriate alternative, ideally one that offers a practical resolution while also addressing social sensitivities (Channon & Crawford, 2010). Subsequently, it involves the execution of the chosen solution within the context of interpersonal interactions, and ultimately, the assessment of the undertaken action with regard to goal achievement and its implications for interpersonal relationships. This enumeration demonstrates that emotional and cognitive empathy components are fundamental prerequisites for the effective resolution of social problems. A review of the literature reveals a strong correlation between social problem-solving skills and empathy, as indicated by several studies (Lewis et al., 2001; Nacar &Tümkaya, 2011; Yılmaz, 2011). Davis (1983), a prominent figure in the field of empathy, has made significant contributions by conceptualizing empathy multifaceted. He defines empathy as an individual's response to another person's observed experiences. According to Davis (1983), empathy encompasses both affective and cognitive components. It involves the process of one person empathetically placing themselves in the shoes of another, comprehending and accurately sensing that person's emotions and thoughts, and then conveying this understanding to them (Dokmen, 2004). It involves the process by which a person empathically places himself/herself in the position of another person, understands and accurately senses that person's emotions and thoughts, and then communicates this understanding to that person (Dokmen, 2004). This definition underscores the vital role of empathy as an effective tool for resolving interpersonal issues that individuals encounter in their daily lives. Considering that communication and empathy are closely intertwined concepts, it becomes evident that the levels of social

problem-solving skills and empathy in individuals exert a substantial influence on their ability to communicate effectively.

In an educational setting, empathy also plays a crucial role in resolving social problems in the classroom, thus fostering constructive communication between educators and children (Köksal Akyol & Koçer Çiftçibaşı, 2005). Understanding children from their perspective should be a primary awareness for an early childhood teacher. Only through this can they effectively guide the atmosphere in their classrooms with positive discipline, safety, and transparency (Mutlu et al., 2014). These empathic tendencies of early childhood teachers, which play a crucial role in children's cognitive, behavioral, and emotional development, are associated with effective practices and outcomes related to social problem solving (Meyers et al., 2019). For instance, studies have indicated that early childhood teachers who possess empathy toward a child's social context gain a more profound insight into the underlying causes of behavioral issues. This insight enables teachers to respond in a manner that is most conducive to helping the child acquire appropriate behaviors and adaptive strategies (Barr, 2011; Waajid et al., 2013). Buettner et al. (2016) investigated how empathy in teachers fosters a sense of belonging and emotional safety among students, which are crucial for effective learning environments. Waajid et al. (2013) also emphasized the role of empathy in mitigating the negative effects of stress and trauma on students' academic performances and well-being. Teachers who demonstrate empathy create a supportive environment where students feel understood and validated, thereby enhancing their resilience and ability to cope with challenges. Furthermore, studies by Cross and Hong (2010) have shown that empathetic teachers are better equipped to recognize and address the diverse social and emotional needs of students from varying backgrounds, ultimately promoting inclusivity and equity in education. In addition, McGrath and Van Bergen (2019) highlight how empathetic teaching practices contribute to the development of important socio-emotional skills in students, such as perspective-taking and conflict resolution. By modeling empathy, teachers not only support students' individual development but also cultivate a classroom culture characterized by kindness, respect, and cooperation. When early childhood teachers actively engage in empathy with children, they are better positioned to delve into the distinctive challenges or situations that individual children face. This approach enhances their effectiveness in meeting the specific needs of each child, ultimately fostering more positive teacher-children relationships (Buettner et al., 2016; Cross & Hong, 2010; McGrath & Van Bergen, 2019). These studies underscore the critical importance of empathy as a skill within the classroom, especially in the realms of solving social problems and nurturing positive relationships with children in the early childhood period. Moreover, it is an essential attribute for individuals aspiring to pursue careers in education (Köksal Akyol & Koçer Çiftçibaşı, 2005). Considering these studies, it is crucial to examine the relationship between the empathy levels of early childhood teacher candidates who are deemed to possess the necessary qualifications to embark on their careers and their proficiency in social problem-solving.

When the Turkish literature on the field is examined, it is seen that there are many studies on empathy and problem-solving skills. For example, Pala (2008) conducted research to reveal the empathy levels of teacher candidates and determine whether empathy levels differ according to some variables, to determine the empathic skill levels of teacher candidates (Köksal Akyol & Koçer Çiftçibaşı, 2005), to examine the problem-solving skill levels of teacher candidates according to various variables (Ocak & Eğmir, 2014), and to examine the social problem-solving skill levels of teacher candidates (Samancı & Uçan, 2015). Considering the existing literature, the intersection of empathic tendency and social problem-solving remains unexplored within the context of early childhood education teacher candidates. Consequently, the aim of this study was to examine the proficiency of early childhood education teacher candidates in both social problem-solving and empathic tendencies, aiming to discern and establish any potential connections between these two pivotal dimensions. In this regard, the following research questions were created and answers sought: questions were posed and answers sought:

Q1) What is the level of empathic tendencies of early childhood teacher candidates?

Q2) What is the level of social problem-solving skills of early childhood teacher candidates?

Q3) Is there a statistically significant relationship between the level of early childhood teacher candidates' empathic tendencies and social problem-solving skills?

Q4) Do the empathic tendencies of early childhood teacher candidates differ significantly according to personal data (age, gender, graduated school, educational status of the family, family type, dominant attitude in the family, number of siblings, etc.)?

Q5) Do the social problem-solving skills of pre-school teacher candidates differ significantly according to personal data (age, gender, graduated school, educational status of the family, family type, dominant attitude in the family, number of siblings, etc.)?

METHOD

In this study, a relational (correlational) research model, one of the quantitative research methods, was used. According to Creswell (2005), the relational research model; It measures the degree of relationship between two or more variables and enables investigation of whether the variables are related to each other. In addition, in relational research, there is no cause-effect relationship between variables, and variables cannot be manipulated by researchers (Fraenkel & Wallen, 2006).

Participants

The participants of this study are early childhood teacher candidates who are students at Duzce University, Basic Education Department, Early Childhood Education Program. A total of 187 teacher candidates participated in the study by answering the surveys shared online, and detailed information about the participants obtained through the personal information form is given in Table 1.

Table 1

Personal Information about the Participants

Personal Information	**Options**	**n**	**%**
Age	"18"	9	4.8
	"19"	25	13.4
	"20"	41	21.9
	"21"	34	18.2
	"22"	35	18.7
	"23"	18	9.6
	"24"	8	4.3
	"25 and over"	17	9.1
Gender	"Female"	149	79.7
	"Male"	38	20.3
Graduated school	"Science/Anatolian High School"	101	54.0
	"Foreign Language Intensive High School"	2	1.1
	"Vocational High School"	45	24.1
	"General High School"	7	3.7
	"Associate Degree"	4	2.1
	"Other"	28	15.0
Educational status of the mother	"Illiterate"	27	14.4
	"Literate"	14	7.5

	"Primary school graduate"	91	48.7
	"Secondary school graduate"	26	13.9
	"High school graduate"	19	10.2
	"Graduated from a university"	8	4.3
	"Other"	2	1.1
Educational status of the father	"Illiterate"	7	3.7
	"Literate"	7	3.7
	"Primary school graduate"	75	40.1
	"Secondary school graduate"	35	18.7
	"High school graduate"	38	20.3
	"Graduated from a university"	24	12.8
	"Other"	1	.5
Family type	"Extended Family"	41	21.9
	"Nuclear Family"	130	69.5
	"Broken Family"	16	8.6
Family attitude	"Democratic Family"	137	73.3
	"Authoritarian Family"	41	21.9
	"Liberal Family"	9	4.8
Number of siblings	"1"	6	3.2
	"2"	49	26.2
	"3"	55	29.4
	"4"	25	13.4
	"5 and over"	52	27.8
Birth order	"first"	70	37.4
	"median"	71	38.0
	"last"	46	24.6
Total		187	100%

Data Collection Tools

Three data collection tools were used in this study. Data collection tools used were; "Personal Information Form", "Empathic Tendency Scale" (Dokmen, 1988), and "Social Problem Solving Inventory" (Heppner & Peterson, 1982).

The questions in the Personal Information Form were developed by the researchers by reviewing the literature, and the necessary arrangements were made by obtaining expert opinions from an expert working in the field of early childhood education at a state university. The personal information form includes questions about the participants' age, gender, graduated school, educational status of family, family type and attitudes, number of siblings, and birth order.

Dokmen (1988) developed the Empathic Tendency Scale in 1988 to measure an individual's empathy potential in daily life. It is a Likert-type scale and consists of 20 questions, and each question is given a score from 1 to 5. When collecting the scores, the 3rd, 6th, 7th, 8th, 11th, 12th, 13th, and 15th questions are summed in reverse. The lowest score to be obtained from the scale is 20, and the highest score is 100. The total score represents the participants' empathic tendency scores. A high score indicates a high empathic tendency, and a low score indicates a low empathic tendency. The reliability of the test was obtained by Dokmen (1988) by administering the scale to a group of 70 students using the test-retest method, three weeks apart. Because of the analysis, the reliability of the scale was found to be .82. The split-half reliability between the scores the participants received from the odd and even items of the scale was found to be .86. Dokmen also conducted a validity study of the test in 1988. The validity of similar scales obtained by applying the "Understanding Emotions" section of the Edwards Personal Preference Inventory and the Empathic Tendency Scale to a group of 24 participants was found to be .68.

The first adaptation study of the Social Problem Solving Inventory developed by Heppner and Peterson (1982) was conducted by Akkoyun and ztan (1988. cited in Taylan, 1990). The Problem Solving Inventory, which was later adapted into Turkish by Taylan (1990) and ahin et al. (1993), consists of 25 items and is a 5-point measurement tool. In the reliability studies of the scale, α = .88 and the split-half reliability coefficient was found to be r = .81. The lowest score to be obtained from the scale is 25 and the highest score is 125. Low scores indicate being effective in solving problems, whereas high scores indicate not being able to produce effective solutions to problems.

Examples of the questions in the Personal Information Form and the items in the Empathic Tendency Scale and Social Problem-Solving Inventory, which are the tools used to collect data, are presented in Table 2.

Table 2

Sample Questions and Items in the Data Collection Tools

Data Collection Tools	Sample Questions and Items
Personal Information Form	How old are you? What is your family type? What is the attitude of your family?
Empathic Tendency Scale	"I often feel lonely." "Other people's problems concern me as much as my own." "Telling my troubles to a relative relieves me."
Social Problem-Solving Inventory	"When I have an important problem to solve, I feel threatened and afraid." "When deciding, I do not consider all options carefully enough." "When I must make an important decision, I feel uneasy and unsure of myself."

Data Collection Process and Analysis

Before data collection, ethical approval for the study was obtained from the Ethics Committee of Duzce University. The scales used to collect data for the study were digitized and made available online. These digital scales were shared with the early childhood teacher candidates. The data collected from participants in the online environment were transferred to SPSS 26.0 statistical software for the necessary analyses.

Before analyzing the data collected from the participants, skewness and kurtosis values were checked to check the normality distribution of the data obtained through the scales. Because the skewness and kurtosis values were between +1.5 and -1.5, it was determined that the data were within a normal distribution (Tabachnick & Fidell, 2013). Because the data showed normal distribution, parametric tests were used in the analysis process.

Descriptive statistics were used to determine values such as mean, minimum score, maximum score, and standard deviation from the scores received by pre-school teacher candidates from the Empathic Tendency Scale and Social Problem Solving Inventory. "Pearson Product Moment Correlation Coefficient" was calculated to reveal whether there was a relationship between the participants' empathic tendencies and social problem-solving skills. Finally, "one-way ANOVA analysis" was used to determine whether the

participants' empathic tendencies and social problem-solving skills differed according to personal data such as age, family type, and family attitude.

Ethical considerations

Ethical Review Board: Scientific Research and Publication Ethics Committee of Duzce University

Date of Ethics Review Decision: 25.02.2021

Ethics Assessment Document Issue Number: 2021/55

RESULTS

Under this heading, the analysis results that provide answers to the research questions will be presented.

Empathic tendency levels of early childhood teacher candidates

The findings regarding the first research question of the study are presented in Table 3.

Table 3

Empathic Tendency Levels of the Participants

Scale	N	Min.	Max.	X	SD	Level
Empathic Tendency Scale	187	52.00	81.00	65.69	6.324	Moderate

Table 3 shows that the average score obtained from early childhood teacher candidates from the Empathic Tendency Scale is 65.69. Considering the score range that can be obtained from the scale (20-100) and considering the lowest and highest scores received by the participants, the empathic tendency levels of the early childhood teacher candidates participating in the study are moderate.

Social problem-solving skills of early childhood teacher candidates

The findings regarding the second research question of the study are presented in Table 4.

Table 4

Social Problem-Solving Levels of Participants

Scale	N	Min.	Max.	X	SD	Level
Social Problem-Solving Inventory	187	49.00	113.00	77.42	9.37	Moderate

Table 4 shows that the average score obtained from early childhood teacher candidates from the Social Problem Solving Scale is 77.42. Considering the score range that can be obtained from the scale (25-125) and considering the lowest and highest scores received by the participants, the social problem-solving levels of the early childhood teacher candidates participating in the study are moderate.

Relationship between empathic tendencies and social problem-solving levels of early childhood teacher candidates

The findings regarding the third research question of the study are presented in Table 5.

Table 5

Relationship between Empathic Tendency and Social Problem-Solving Levels of Participants

		SPSI
ETC	**r**	.436**
	P	.000
	N	187

**Correlation is significant at the 0.01 level (2-tailed)

The data obtained from the Pearson Correlation analysis presented in Table 5 indicate a significant relationship between empathic tendencies and total social problem-solving scores of the early childhood teacher candidates. According to Cohen (1988), when the Pearson correlation coefficient (r) is between .50 and 1.0, the level of the relationship between two variables is considered high; when it is between .30 and .49, the relationship level is moderate; and when it is between .10 and .29, the relationship level is considered low. When examining the relationship between the total scores obtained from the Empathic Tendency Scale and the Social Problem Solving Inventory, it can be seen that there is a positively moderate relationship between these two variables ($r = .4363$, $p < .01$). Considering the findings, it can be stated that empathic tendency and social problem-solving variables

are interrelated. Based on the data presented in Table 5 and the explanations above, as the empathic tendency levels of early childhood teacher candidates increase, their social problem-solving levels also increase.

Differences in the empathic tendencies of early childhood teacher candidates according to personal characteristics

The findings regarding the fourth research question of the study are presented in Table 6.

Table 6

Differences in the Empathic Tendencies of Participants According to Personal Characteristics

		Sum of Squares	df	Mean Square	F	p
Age	Between Groups	319.738	7	45.677	1.148	.335
	Within Groups	7119.887	179	39.776		
	Total	7439.626	186			
Gender	Between Groups	24.826	1	24.826	.619	.432
	Within Groups	7414.799	185	40.080		
	Total	7439.626	186			
Graduated school	Between Groups	197.511	5	39.502	.987	.427
	Within Groups	7242.115	181	40.012		
	Total	7439.626	186			
Educational status of the mother	Between Groups	198.446	6	33.074	.822	.554
	Within Groups	7241.180	180	40.229		
	Total	7439.626	186			
Educational status of the father	Between Groups	158.172	6	26.362	.652	.689
	Within Groups	7281.454	180	40.453		
	Total	7439.626	186			
Family type	Between Groups	33.774	2	16.887	.420	.658
	Within Groups	7405.852	184	40.249		
	Total	7439.626	186			

Family attitude	Between Groups	162.789	2	81.395	2.058	.131
	Within Groups	7276.836	184	39.548		
	Total	7439.626	186			
Number of siblings	Between Groups	300.615	4	75.154	1.916	.110
	Within Groups	7139.011	182	39.225		
	Total	7439.626	186			
Birth order	Between Groups	173.916	2	86.958	2.202	.113
	Within Groups	7265.710	184	39.488		
	Total	7439.626	186			

Table 6 presents the results of a "one-way ANOVA analysis" conducted to examine the differences in early childhood teacher candidates' empathic tendencies based on personal characteristics. According to this analysis, there was no significant difference among the participants in terms of their ages (F_age =1.148, p=.335). Similarly, there was no significant difference based on participants' gender (Fgender =.619, p=.432), graduated school (Fgraduated_school =.987, p=.427), educational status of the mother (Feducational_status_of_the_mother =.822, p=.554), educational status of the father (Feducational_status_of_the_father =.652, p=.689), family type (Ffamily_type = 420, p =.658), family attitude (Ffamily_attitude = 2.058, p=.131), number of siblings (Fnumber_of_siblings =1.916, p=.110), and birth order (Fbirth_order =2.202, p=.113).

Differences in the social problem-solving skills of early childhood teacher candidates according to personal characteristics

The findings regarding the fifth research question of the study are presented in Table 7.

Table 7

Differences in the Social Problem-Solving Skills of Participants According to Personal Characteristics

		Sum of Squares	**df**	**Mean Square**	**F**	**p**
Age	Between Groups	620.094	7	88.585	1.008	.427
	Within Groups	15733.681	179	87.898		
	Total	16353.775	186			

Gender	Between Groups	405.048	1	405.048	4.698	.031
	Within Groups	15948.727	185	86.209		
	Total	16353.775	186			
Graduated school	Between Groups	167.203	5	33.441	.374	.866
	Within Groups	16186.573	181	89.429		
	Total	16353.775	186			
Educational status of the mother	Between Groups	951.110	6	158.518	1.852	.091
	Within Groups	15402.665	180	85.570		
	Total	16353.775	186			
Educational status of the father	Between Groups	875.087	6	145.848	1.696	.124
	Within Groups	15478.689	180	85.993		
	Total	16353.775	186			
Family type	Between Groups	158.274	2	79.137	.899	.409
	Within Groups	16195.501	184	88.019		
	Total	16353.775	186			
Family attitude	Between Groups	508.579	2	254.290	2.953	.055
	Within Groups	15845.196	184	86.115		
	Total	16353.775	186			
Number of siblings	Between Groups	869.664	4	217.416	2.556	.040
	Within Groups	15484.112	182	85.078		
	Total	16353.775	186			
Birth order	Between Groups	17.828	2	8.914	.100	.905
	Within Groups	16335.948	184	88.782		
	Total	16353.775	186			

Table 7 provides the results of a "one-way ANOVA analysis" conducted to examine the differences in early childhood teacher candidates' social problem-solving skills based on their personal characteristics. According to this analysis, there was no significant difference among the participants in terms of age (Fage = 1.008, p = .427). However, a significant difference was found among the participants based on their gender (Fgender = 4.698, p =

.031). Similarly, there was no significant difference based on participants' graduated school (Fgraduated_school = .374, p = .866), educational status of the mother (Feducational_status_of_the_mother = 1.852, p = .091), educational status of the father (Feducational_status_of_the_father = 1.696, p = .124), family type (Ffamily_type = .899, p = .409), family attitude (Ffamily_attitude = 2.953, p = .055), and birth order (Fbirth_order = .100, p = .905). However, there was a significant difference among the participants based on the number of siblings (Fnumber_of_sibling = 2.556, p = .040). The post hoc tests showed where differences among the groups occurred. Post hoc comparisons using the Tukey HSD test indicated that the mean score for Group 3 (M=74.98, SD=9.43) was significantly different from that for Group 4 (M=81.52, SD=11.59). That is, having three siblings and having four siblings differ significantly in terms of their social problem-solving skills.

DISCUSSION

In this study, researchers examined the relationship between early childhood teacher candidates' empathic tendencies and social problem-solving skills. For this purpose, five research questions were prepared and the research questions were answered in the finding section.

According to the results of the research, the empathic tendency of the early childhood teacher candidates who participated in the study was found to be moderate. While the maximum score that can be obtained is 100 points, the average score of teacher candidates is 65.69. Considering this result, it is not sufficient for teachers who will transfer their empathic tendency skills to society and for teacher candidates who will be the teachers of the future (Yüksel & Adıgüzel, 2012). When early childhood teachers are able to empathize with children, they are able to enter their world, which results in a positive, safe, and transparent classroom atmosphere for children. Teachers who can understand children's needs with empathic thinking can understand children's needs more accurately and strive to meet them in a healthy way (Pala, 2008). In contrast, teachers with less empathic tendencies may create a more unsafe atmosphere in their classrooms, and children may tend to alienate themselves from the classroom (Yaşar & Erol, 2015). At the same time, it is thought that teachers' empathic understanding can contribute to the child's self-perception and that teachers' social problem-solving skills will be positively affected (Çelik & Çağdaş, 2010).

Another result of this research is related to the social problem-solving skills of the participants. The social problem-solving skills of the early childhood teacher candidates who participated in the study were found to be moderate. The average score of 77.42 out of 125 shows that the early childhood teacher candidates have a fair grasp of social problem-solving. In practical terms, this means that they are likely to know how to handle common social situations in the classroom, like resolving minor conflicts among children or communicating effectively with parents. However, they might not be as skilled in more complex or challenging scenarios like handling intense emotional outbursts or navigating

diverse classroom dynamics (Jones et al., 2015). These results highlight the need for targeted improvements in teacher training programs, particularly emphasizing practical, hands-on experiences and emotional intelligence development (Jennings & Greenberg, 2009). This approach is crucial in early childhood education, where teachers play a pivotal role in shaping children's social and emotional learning (Ashdown & Bernard, 2012). While the study points to a reasonable baseline skill set, it also underscores the importance of personalized training approaches, considering the individual variability among teacher candidates (Sabol & Pianta, 2012). The findings indicate that while candidates are generally prepared, there is significant room for enhancing their capabilities to navigate and solve social problems (Rimm-Kaufman & Hamre, 2010).

The finding that there is a moderate, positive relationship between empathic tendencies and social problem-solving skills in early childhood teacher candidates aligns with and is supported by various studies (Aktaş & Sezen-Balçikanli, 2018; Findlay et al., 2006; İmece & Arslan-Cansever, 2019; McMahon et al., 2006; Yılmaz, 2011). This correlation demonstrates that individuals who possess higher levels of empathy are also more adept at navigating social problems effectively, a conclusion echoed by Segal et al. (2013), who emphasize the role of empathy in understanding different perspectives, which is crucial for conflict resolution and social interaction. This relationship is especially relevant in early childhood education, where, as Mashburn et al. (2006) pointed out, educators with heightened empathic skills can foster nurturing and emotionally intelligent classroom environments. In addition, Miklikowska et al. (2011) highlight that empathy is positively correlated with prosocial behavior, which is integral to social problem solving. The implications of these findings for teacher training are significant, as Jennings and Greenberg (2009) advocate for integrating empathy training into teacher education to bolster these capabilities. Furthermore, mece and Arslan-Cansever (2019) stress that teachers proficient in empathy and social problem-solving contribute greatly to positive classroom dynamics and holistic student development. In summary, the moderate positive link between empathy and social problem-solving skills in teacher candidates reflects their intertwined role in effective teaching, particularly in shaping the social and emotional landscape of early childhood education.

According to the findings, the empathic tendency levels of the early childhood teacher candidates participating in the study do not differ with personal data such as gender, age, graduated school, educational status of the mother and father, family type, family attitude, number of siblings, and birth order. This reveals a universal aspect of empathic development in individuals pursuing early childhood education, regardless of their demographic or familial backgrounds. In the realm of educational psychology, empathy is often posited as a trait that can be developed and nurtured through specific experiences and educational practices, rather than being solely influenced by demographic factors. For instance, a study by Tettegah and Anderson (2007) indicates that empathy in teachers can be fostered through targeted training and reflective practices, regardless of their personal

backgrounds. This perspective is reinforced by findings from Cohen and Strayer (1996), who found that empathy is more closely linked to interpersonal experiences and emotional intelligence development than demographic variables like age or gender. Moreover, the lack of a significant difference in empathic tendencies based on family factors such as type, attitude, and birth order shows that while the familial environment contributes to overall emotional development, professional training in education may play a more dominant role in shaping empathic skills in teacher candidates. This agrees with research by Spinrad and Eisenberg (2009), which highlights the complex interplay of various factors, including education and professional training, in developing empathic abilities. Thus, these findings underscore the importance of educational settings and professional development in cultivating empathy among early childhood teacher candidates. They reveal hat empathy as a professional skill can transcend personal and demographic differences, highlighting the potential for inclusive and universally applicable training programs in empathy development for educators.

Finally, according to the findings, the social problem-solving skills of the early childhood teacher candidates participating in the study do not differ with personal data such as age, graduated school, educational status of the mother and father, family type, family attitude, and birth order. On the other hand, the social problem-solving skills of the early childhood teacher candidates participating in the study differ with gender and number of siblings. This finding offers an interesting perspective on the development of these skills in educational contexts. The difference in social problem-solving skills based on gender aligns with some research indicating that social and emotional learning can manifest differently across genders. Zins et al. (2004) found that females and males might develop and apply social problem-solving strategies differently, often influenced by socialization patterns and societal expectations. To give a more specific example, the results of the Ocak & Eğmir (2014) study, which examined the social problem-solving skill levels of teacher candidates, also support the current study. The results of this study show that female teacher candidates have significantly higher social problem-solving skills than male teacher candidates. Moreover, the influence of the number of siblings on social problem-solving skills is a notable finding. Past research, such as that conducted by Downey (1995), has shown that children from larger families often develop unique social skills because of the necessity of navigating more complex family dynamics. Having more siblings might provide more opportunities for social interaction, conflict resolution, and understanding diverse perspectives from an early age, which can translate into more effective social problem-solving skills. In addition, siblings often serve as role models, teachers, and adversaries, providing a rich social environment that fosters the development of social understanding and empathy. Dunn (2007) notes that sibling interactions significantly contribute to social and emotional development. In summary, the finding that the number of siblings correlates with social problem-solving skills in teacher candidates can be

understood within the broader context of family dynamics and sibling interactions contributing to the development of these essential skills.

LIMITATIONS AND RECOMMENDATIONS

For future studies planned, researchers are advised to increase the number of samples, ensure gender distribution among early childhood teacher candidates participating in the study, and use qualitative data collection tools such as interviews or observations in addition to scales to obtain more detailed information.

CONCLUSION

The empathic tendency levels of the early childhood teacher candidates participating in the study were moderate.

The social problem-solving levels of the early childhood teacher candidates who participated in the study were moderate.

Empathic tendency and social problem-solving levels of the early childhood teacher candidates are interrelated, and based on the data presented in Table 5 and the explanations above, as the empathic tendency levels of the early childhood teacher candidates increase, their social problem-solving levels also increase.

There was no significant difference among the participants' empathic tendencies in terms of age, gender, graduated school, educational status of the mother, educational status of the father, family type, family attitude, number of siblings, and birth order.

There is no significant difference among the participants' social problem-solving skills in terms of their ages.However, a significant difference is found among the participants based on their gender. Similarly, there was no significant difference based on participants' graduated school, educational status of the mother, educational status of the father, family type, family attitude, and birth order. However, there was a significant difference among the participants based on the number of siblings; having three siblings and having four siblings differed significantly in terms of their social problem-solving skills.

As a result, when the obtained data are evaluated as a whole, early childhood teacher candidates exhibit moderate levels of both empathic tendencies and social problem-solving skills. While these candidates demonstrate a fair capacity for empathy and handling social challenges, there is still room for further development in these crucial areas. Significantly, the study also uncovers a moderate, positive correlation between empathic tendencies and social problem-solving skills. This relationship highlights the interdependency of these two competencies: a teacher's ability to empathize appears to enhance their capability to effectively solve social problems. This linkage underscores the importance of nurturing empathy as a key component in teacher training programs, not only as a moral or emotional quality but also as a practical skill that contributes to more effective problem resolution in social contexts. These findings are instrumental for informing educational strategies,

indicating that enhancing empathic skills in teacher candidates may concurrently bolster their proficiency in managing social situations, ultimately leading to more effective and responsive teaching practices in early childhood education settings.

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Data Availability Declaration

The data can be shared upon request.

Author Contributions

Multiple Authors with Equal Contribution:

Author Contributions:

All authors, [Nur Banu YİĞİT], [Özge PINARCIK SAKARYALI] contributed equally to this work. They collaboratively handled the conceptualization, methodology design, data acquisition, and analysis. Each author played a significant role in drafting and revising the manuscript, ensuring its intellectual depth and coherence. All authors have thoroughly reviewed, provided critical feedback, and approved the final version of the manuscript. They jointly take responsibility for the accuracy and integrity of the research.

Author(s)' statements on ethics and conflict of interest
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