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The Impact of Professional and Academic Variables on Teachers' Self-Efficacy and Social Problem-Solving Skills*

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Abstract

This study aims to examine the relationship between teachers' individual problem-solving self-efficacy and their social problem-solving skills, as well as to determine whether these competencies differ across various academic and professional variables. The research was conducted within the framework of a relational survey model, and the sample consisted of 200 subject teachers (100 female, 100 male) working across Turkey. During the data collection process, the "Problem-Solving Steps Self-Efficacy Inventory," developed by the researcher, and the Turkish adaptation of the "Social Problem-Solving Inventory (Short Form)" were employed. Data were collected online, and descriptive statistics, t-tests, ANOVA, Kruskal-Wallis H tests, and Pearson correlation analysis were applied in the analysis phase. According to the findings, there is a positive and significant relationship between teachers' individual problem-solving self-efficacy and their social problem-solving skills ($p < .01$). Participants who reported being successful in mathematics or working in the mathematics field scored higher in the "planning" and "implementation" dimensions. Notably, differences were also observed in the "decision-making" sub-dimension of social problem solving according to subject area and professional experience. The study's results suggest that teacher competencies should be considered not only in terms of individual skills but also within the context of social, pedagogical, and contextual factors. It is recommended that teacher education programs incorporate more modular content and practice-based learning experiences focused on social problem solving.

Keywords: Self-Efficacy, Cognitive Skills, Professional Variables, Social Problem Solving,

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In today's world, the rapid advancement of science and technology has led to a shift in the competencies expected from individuals. Modern societies aim to educate individuals who can adapt to the rapidly evolving scientific and technological landscape, keep up with developments, critically interpret change, and possess mathematical competencies such as problem-solving, reasoning, and establishing connections. Among these, problem-solving skills have gained particular importance, especially as technological progress has introduced new and increasingly complex problems.

One of the fundamental responsibilities of educational systems is not only to equip individuals with knowledge but also to ensure they develop the skills necessary to apply that knowledge effectively across various domains of life. Accordingly, it is essential to raise individuals who not only pursue academic success but also demonstrate the ability to analyze and resolve problems encountered in social contexts.

Moreover, the information age, accompanied by technological innovation, has brought about a multitude of novel and unprecedented challenges that humanity has never faced before. As a result, 21st-century educational systems expect teachers to go beyond the role of mere transmitters of knowledge. Teachers are now required to be capable of generating solutions to multifaceted problems, to think critically, and to communicate effectively (Senemoğlu, 2011; Yeşilyurt, 2013). The complex experiences encountered within educational settings often require teachers to simultaneously draw upon both their individual problem-solving capacities and their approaches to resolving issues within the context of social interaction (Heppner & Petersen, 1982; D'Zurilla & Nezu, 1990). Understanding the relationship between teachers' self-efficacy beliefs regarding problem-solving processes and their social problem-solving skills provides a strong theoretical foundation and practical insight for developing effective teaching practices (Bandura, 1997; Zimmerman, 2000).

Problem-solving self-efficacy refers to an individual's belief in their own capacity to successfully manage and resolve problems they encounter (Bandura, 1997). Social problem-solving, on the other hand, is the ability to produce effective and adaptive solutions in interpersonal situations (D'Zurilla & Nezu, 1990). Investigating how these two constructs influence one another is particularly relevant in professions like teaching, which require the integration of both cognitive and social skills.

However, the existing literature reveals a lack of consistent investigation into the relationship between these constructs across diverse samples, with methodological limitations frequently noted. For example, some studies have relied solely on self-report instruments, while others have neglected sample diversity. Furthermore, these relationships have not been systematically analyzed alongside variables such as years of professional experience, subject area, or academic achievement. This highlights critical gaps in understanding the professional development of teachers.

Determining teachers' levels of competence in these skill areas can contribute significantly to the evaluation of teacher education programs and the design of school-based professional development plans (Aydın, 2016; Temizkan, 2020). Therefore, scientifically revealing the interaction between teachers' individual and social problem-solving skills holds considerable potential for contributing meaningfully to contemporary educational research literature (Şahin & Heppner, 1993).

In today's changing and increasingly complex social structure, individuals are expected to effectively solve the problems they encounter in both their daily lives and professional

careers. This situation necessitates that individuals possess not only technical knowledge but also strong problem-solving competence. For teachers within the educational system, this competency becomes even more critical; because teachers are not only responsible for solving their own problems but also for teaching their students problem-solving strategies and serving as role models in this regard (Akbaba-Altun, 2009; Yıldırım, 2010).

In particular, teachers' possession of both individual and social problem-solving skills enhances the quality of learning environments and positively influences classroom interaction. The higher a teacher's problem-solving ability, the more effective classroom management, student achievement, and flexibility in the instructional process become (Çelikkaleli, 2011). In this context, teachers need to be equipped not only with technical knowledge but also with skills such as critical thinking, empathy, solution generation, and implementation.

Problem-solving ability is closely related to an individual's sense of self-efficacy. According to Bandura's (1997) self-efficacy theory, individuals who believe they can solve the problems they encounter are more likely to generate lasting, creative, and effective solutions. This phenomenon holds particular significance for teachers. Teachers require a high level of problem-solving self-efficacy to effectively manage the various challenges they frequently encounter in their professional lives.

However, problem-solving is not solely an individual skill; it is also a multifaceted ability that encompasses a social dimension. Social problem-solving refers to an individual's ability to generate constructive and appropriate solutions to problems encountered in interpersonal relationships. D'Zurilla and Nezu (2007) emphasize that social problem-solving is a cognitive and behavioral process that enables individuals to effectively cope with environmental stressors. In this process, teachers are expected to effectively manage social conflicts that arise in their interactions with both students and colleagues.

In this context, studies that simultaneously examine teachers' problem-solving self-efficacy and social problem-solving skills are crucial for enhancing teacher competence and creating more effective educational environments.

Problem-Solving Self-Efficacy

Problem-solving self-efficacy is a cognitive evaluation process that reflects an individual's confidence in their ability to resolve encountered problems and their belief in achieving successful outcomes (Heppner & Petersen, 1982). In Bandura's (1997) social cognitive theory, the concept of self-efficacy is defined as one of the key psychological determinants that guide behavior, encompassing an individual's perception of control over their own actions. Accordingly, problem-solving self-efficacy is directly related to an individual's belief in their capacity to execute all phases of the problem-solving process—recognizing the problem, generating alternatives, making decisions, and implementing solutions (Bandura, 1997; Heppner & Petersen, 1982).

In recent years, studies have demonstrated significant relationships between teachers' problem-solving self-efficacy and various professional variables such as instructional success, classroom management, student interaction, and the teaching process. For instance, in a mixed-methods study conducted by Orakcı, Göksu, and Karagöz (2022), it was reported that teachers possessed high levels of self-efficacy beliefs, which in turn enhanced their flexibility and motivation in instructional practices. Similarly, Debalos and Oco (2025), in a study involving Filipino teachers, revealed a strong correlation between self-efficacy, professional resilience, and 21st-century skills. These findings indicate that teachers' capacity to cope with challenges in educational environments is influenced by their level of problem-solving self-efficacy.

In the context of Türkiye, research also highlights that teachers' problem-solving self-efficacy significantly differs based on various demographic and professional variables. For instance, in a study by Aksaray and colleagues (2022), it was found that high school teachers' levels of self-efficacy were influenced by factors such as age, subject area, and professional experience. Similarly, Afacan (2024), in a study conducted with early childhood teachers, revealed that self-efficacy beliefs played a decisive role in professional satisfaction and in establishing effective communication with students. Moreover, research conducted within the framework of STEM education has shown that preservice teachers' levels of problem-solving self-efficacy are critical in their adoption of innovative teaching strategies and in supporting students' higher-order cognitive skills (Jaipal-Jamani, 2024).

In light of these findings, enhancing teachers' problem-solving self-efficacy contributes not only to their individual development but also to the overall quality of educational environments. Teachers with high levels of self-efficacy are better equipped to manage complex and ambiguous classroom situations, provide more effective guidance to their students, and design instructional processes in a more flexible and creative manner. Therefore, assessing problem-solving self-efficacy and systematically fostering these skills should be among the top priorities of contemporary education systems.

Social Problem-Solving Skills

Social problem-solving skill is a conscious and systematic cognitive-behavioral competence that encompasses the processes of recognizing, analyzing, generating alternative solutions, and implementing appropriate resolutions to problems that arise in interpersonal relationships (D'Zurilla & Nezu, 1990). D'Zurilla, Nezu, and Maydeu-Olivares (2021) emphasized that social problem-solving is a multidimensional process requiring emotional intelligence, empathy, and cognitive flexibility. This process is particularly critical for teachers in terms of generating functional solutions to classroom conflicts, student behavior, and communication with colleagues.

Studies conducted in Turkey have also highlighted the contribution of social problem-solving to the teaching profession. For instance, Yılmaz and Kaya (2022) reported that classroom teachers demonstrated a high level of social problem-solving skills and that these skills had positive effects on classroom management. Similarly, Demir (2023) investigated the effects of social problem-solving skills on job satisfaction, coping with stress, and teacher burnout, finding that strong social problem-solving abilities enhance emotional resilience and job satisfaction.

In international literature, several studies have reported significant relationships between social problem-solving skills, professional resilience, and school climate. For

example, Garza and Mills (2024) found that teachers with high social problem-solving skills exhibited more constructive leadership in collaborative learning environments. These findings suggest that such teachers play a more effective role in shared decision-making processes with their colleagues and can resolve classroom conflicts more efficiently.

Furthermore, studies examining the integration of social problem-solving skills into technology-enhanced learning environments have shown that these skills also increase the effectiveness of teacher-student communication and the management of online group work in digital settings (Lee & Chang, 2023). These results indicate that the development of social problem-solving skills should be aligned with the digital dimension of 21st-century education.

In conclusion, social problem-solving skills clearly contribute not only to teachers' individual competencies but also have the potential to foster positive interaction and effective collaboration in both classroom management and the broader school community. Therefore, the development of social problem-solving skills should be prioritized in educational policies and teacher training programs.

Research on teachers' problem-solving self-efficacy and social problem-solving skills provides a strong conceptual foundation for educational studies. However, studies that investigate these two variables together within teacher samples remain limited. In a mixed-method study conducted by Orakcı, Göksu, and Karagöz (2022), a positive relationship was identified between teachers' self-efficacy levels and their flexibility in classroom practices. Similarly, a study by Aksaray et al. (2022) revealed that factors such as age, teaching field, and experience influenced teachers' self-efficacy beliefs, although the dimension of social problem-solving was not included in the study. This highlights a significant gap in the field of teacher competencies.

In the context of social problem-solving, Yılmaz and Kaya (2022) noted that classroom teachers' social problem-solving skills had a meaningful effect on classroom management. Demir (2023) emphasized the individual and organizational implications of these skills by demonstrating their association with job satisfaction and burnout levels. On an international scale, Garza and Mills (2024) reported that teachers with strong social problem-solving skills assumed more effective leadership roles in collaborative learning processes.

Nevertheless, even in the international literature, studies that analyze problem-solving self-efficacy and social problem-solving skills together—particularly with a focus on teachers—remain scarce. For example, Debalos and Oco (2025) demonstrated strong associations between these two skills and professional resilience and 21st-century competencies in a sample of Filipino teachers. However, their study did not include contextual environmental variables or demographic factors related to social learning.

Accordingly, the existing literature tends to examine problem-solving self-efficacy and social problem-solving skills separately. Furthermore, studies have predominantly focused on students or teacher candidates, with few conducted on active teachers. It has also been observed that prior research often neglects the connections of these constructs with variables such as age, gender, subject area, teaching experience, and parental role models.

Considering these observations, the main research question of this study was formulated as: "What is the effect of academic and professional variables on the relationship

between teachers' problem-solving self-efficacy and their social problem-solving skills?" To address this central question, the following sub-problems were explored:

1. Is there a significant relationship between teachers' problem-solving self-efficacy and their social problem-solving skills?
2. Are there significant differences in these skills based on participants' academic background (e.g., subjects in which they were successful or those that influenced their development)?
3. Are there significant differences in these skills based on participants' professional characteristics (e.g., subject area, teaching experience) and the type of learning environment in which they learn most effectively?

Methodology

Research Design

This study was designed using a correlational survey model to examine the relationship between teachers' problem-solving self-efficacy levels and their social problem-solving skills. Correlational research models allow researchers to collect data in order to describe the current situation and identify the relationships between two or more variables (Büyüköztürk et al., 2024). This design is frequently preferred in educational research as an effective method to determine the relationships among individual characteristics (Karasar, 2024). In particular, it is noted that correlational designs are suitable for understanding the connection between individual variables such as teachers' professional skills and competencies and their social skills (Çepni, 2014). Furthermore, it is often recommended in the literature to use this design to examine the relationships between multidimensional constructs such as problem-solving and social skills (Yıldırım & Şimşek, 2021).

Population and Sample

The population of this study consists of branch teachers working in primary and secondary schools across Türkiye during the 2019–2020 academic year. Due to the broadness of the population, the purposive sampling technique was employed. This technique allows the selection of participants who can provide the most relevant data for the research purpose. Accordingly, the sample of the study comprises 200 teachers (100 female, 100 male) working in various provinces. This sampling method is commonly used when the researcher cannot employ other probabilistic sampling strategies (Kılıç, 2013, p. 44). Participants included teachers from the fields of Primary School Teaching, Mathematics, Science, Turkish, and English. This diversity enabled comparative analysis of the data across different teacher profiles.

Table 1

Demographic Characteristics of the Teachers Participating in the Study

Subject	n	f (%)	Woman	Man
Classroom Teaching	37	18,5	100	100
Mathematics	40	20,0		
English	47	23,5		
Turkish	31	15,5		
Science Education	45	22,5		
Total	**200**	**100**		

Age	**n**	**f (%)**
20-25	15	7,5
25-30	49	24,5
30-35	55	7,5
35-40	48	24,0
40 and above	33	16,5
	200	**100**

Professional Experience	1-7 year	8-15 year	16-22 year	23 year and above
n	73	74	34	19
f (%)	36,5	37,0	17,0	9,5

Participants' Learning Environment for Problem Solving		
Environment	N	f (%)
Family	48	24
School	32	16
Workplace	82	41
Peer Group	31	15,5
Other	7	3,5

The Subject in Which Participants Were More Successful During Their Educational Life		
Subject	n	f (%)
Mathematics	81	40,5
Turkish	58	29,0
Science Education	26	13,0
Social Studies	19	9,5
Other	16	8,0

Data Collection Instruments and Their Development

In this study, two primary data collection instruments were used to measure teachers' problem-solving self-efficacy and social problem-solving skills. These were: the "Problem-Solving Steps Self-Efficacy Inventory," developed by the researcher, and the Turkish-adapted version of the "Social Problem-Solving Inventory (Short Form)." Both instruments were administered online for the purpose of collecting quantitative data. Additionally, a personal information form was included at the beginning of the questionnaire to gather demographic information such as participants' gender, age, subject area, and teaching experience.

Problem-Solving Steps Self-Efficacy Inventory

This inventory, developed by the researcher, aims to assess individuals' self-efficacy in the problem-solving process. During its development, the problem-solving steps proposed by Polya (1973) were considered:

1. Understanding the problem
2. Planning
3. Carrying out the plan
4. Reviewing and evaluating

The scale consists of 20 items, each designed to measure participants' perceived self-efficacy for each step of the problem-solving process. To assess construct validity, the Kaiser-Meyer-Olkin (KMO) coefficient was calculated and found to be 0.678, indicating an adequate sample size for factor analysis. Cronbach's Alpha internal consistency coefficient was calculated as 0.866 for the entire scale, suggesting a high level of reliability. Reliability analyses were also conducted for the scale's four sub-dimensions: "Understanding the Problem," "Planning," "Implementation," and "Evaluation." The Cronbach's Alpha coefficients for these sub-dimensions were calculated as 0.508, 0.723, 0.636, and 0.787, respectively. During the scale development process, expert opinions were solicited, and the items were finalized based on feedback from at least four academic field experts.

Social Problem-Solving Inventory (Short Form)

The original version of this inventory, designed to assess individuals' strategies for resolving social problems encountered in daily life, was developed by D'Zurilla and Nezu (1990), and its Turkish adaptation was conducted by Duyan and Gelbal (2008). While the original scale consists of 70 items, it was reduced to 20 items for the purposes of this study. The inventory includes four sub-dimensions: "Problem Definition," "Alternative Generation," "Decision-Making," and "Solution Implementation."

The overall Cronbach's Alpha for the scale was found to be 0.843. Sub-dimension coefficients were 0.704 for "Definition," 0.659 for "Alternatives," 0.586 for "Decision-Making," and 0.604 for "Solution," indicating that the scale is generally reliable. A KMO value of 0.677 was also obtained, confirming the scale's acceptable level of construct validity. Reverse-coded items were accounted for in the scoring, particularly items 1, 3, 5, 7, 10, and 16 of the Social Problem-Solving Inventory.

Data Collection and Analysis

The data for this study were collected online during the 2019–2020 academic year. In light of the COVID-19 pandemic and potential difficulties in reaching participants, all instruments, including the personal information form, were administered using Google Forms. This method enabled access to teachers working in different provinces of Turkey, and participation was voluntary.

The data were analyzed using SPSS 23.0 (Statistical Package for the Social Sciences). Initially, descriptive statistics (frequency, percentage, mean, standard deviation) were calculated. In line with the study's main objectives, relational analyses were also conducted.

The data analysis process included the following steps:

- Normality and homogeneity tests were conducted to determine whether parametric tests could be applied.
- When parametric assumptions were met, independent samples t-tests and one-way ANOVA were used.
- For sub-problems where parametric assumptions were not met, Mann-Whitney U and Kruskal-Wallis H tests were employed.
- Pearson correlation analysis was used to determine the strength of the relationships between variables.
- A significant level of $p < .05$ was used for all statistical analyses.

Reverse-coded items were considered during scoring, and the dataset was adjusted accordingly prior to analysis. Total and sub-dimension scores for each scale were calculated separately and used in the statistical evaluations.

Ethical Statement

There is no formal ethics committee approval. The research was conducted in accordance with the principles of the Declaration of Helsinki. Participation was voluntary, and informed consent was obtained from all participants via an online consent form.

Findings

The Relationship Between Teachers' Problem-Solving Self-Efficacy and Social Problem-Solving Skills

In this section, a correlation analysis was conducted to examine whether there is a statistically significant relationship between teachers' individual problem-solving self-efficacy levels and their social problem-solving skills.

Table 2

Findings Regarding the Relationship Between Teachers' Problem-Solving Self-Efficacy and Social Problem-Solving Skills

		1	2	3	4	5	6	7	8	9	10
1	Problem-Solving Step	1,000									
2	Understanding the Problem	,789**	1,000								
3	Planning	,853**	,595**	1,000							
4	Implementation	,781**	,555**	,590**	1,000						
5	Controlling	,856**	,570**	,602**	,596**	1,000					
6	Identification	,577**	,526**	,395**	,505**	,519**	1,000				
7	Generating Alternatives	,434**	,352**	,329**	,416**	,354**	,512**	1,000			
8	Decision-Making	,457**	,424**	,327**	,450**	,326**	,510**	,595**	1,000		
9	Solution	,470**	,377**	,312**	,365**	,455**	,587**	,348**	,372**	1,000	
10	Social Problem Solving	,585**	,505**	,414**	,557**	,470**	,782**	,804**	,836**	,573**	1,000

When examining the correlation table illustrating the relationship between the Problem-Solving Steps Self-Efficacy Inventory and the Social Problem Solving Inventory (Short Form), it is observed that there is a statistically significant positive correlation at the 0.01 level across all sub-dimensions of both scales. This finding indicates that teachers' individual problem-solving competencies positively influence their social problem-solving skills. In other words, as teachers' levels of self-efficacy in individual problem-solving increase, their social problem-solving skills also develop. That is, individuals who perceive themselves as highly self-efficacious are more capable of generating effective solutions to the interpersonal problems they encounter in social life.

Differences Between Participants' Academic Background (Most Successful Subject, Subject Affecting Development) and Their Skills

This section presents the results indicating the differences in the Problem-Solving Steps Self-Efficacy Inventory and its sub-dimensions according to the responses to the question, *"In which of the following subjects did you perform best during your school years?"*

Table 3

Kruskal-Wallis Test Results of the Problem-Solving Steps Self-Efficacy Inventory According to the Participants' Most Successful Subject in School Life

The Most Successful Course	N	Mean	Df	P
Mathematics	81	110,37		
Turkish	58	99,46		
Science Education	26	97,00	4	,009
Social Studies	19	57,55		
Other	16	111,00		

According to the data presented in Table 3, there is a statistically significant difference between the course in which participants believed they were most successful during their educational life and the scores they obtained from the "Self-Efficacy Inventory for Applying Problem-Solving Steps." The p-value obtained from the Kruskal-Wallis test is 0.009 ($p < 0.05$), indicating that the difference between the groups is statistically significant.

When examining the mean ranks, it is observed that the highest scores belong to participants who reported being most successful in the "Other" (111.00) and "Mathematics" (110.37) courses. These groups are followed by participants who reported success in Turkish (99.46), Science (97.00), and finally Social Studies (57.55), which had the lowest average ranking. This finding suggests that individuals who consider themselves successful in mathematics tend to have higher levels of self-efficacy in problem-solving.

Table 4

Kruskal-Wallis Results for the "Understanding the Problem" Sub-Dimension of the Self-Efficacy Inventory for Applying Problem-Solving Steps According to the Most Successful Course in Participants' Educational History

Courses	N	Mean	df	F	p
Mathematics	81	4,6198			
Turkish	58	4,6241			
Science Education	26	4,4692	4	2,898	,023
Social Studies	19	4,2842			
Other	16	4,5875			

According to the data presented in Table 4, there is a statistically significant difference between the course in which participants reported being most successful during their school years and the scores obtained from the "Understanding the Problem" sub-dimension of the Self-Efficacy Inventory for Applying Problem-Solving Steps. The p-value obtained from the Kruskal-Wallis test is 0.023 ($p < 0.05$), indicating a statistically significant difference among the mean scores of different subject groups.

Table 5

Kruskal-Wallis Results for the "Planning" Sub-Dimension of the Self-Efficacy Inventory for Applying Problem-Solving Steps According to the Course in Which Participants Were Most Successful During Their School Life

Courses	N	Mean	df	F	p
Mathematics	81	4,3560			
Turkish	58	4,2931			
Science Education	26	4,3910	4	4,519	,002
Social Studies	19	3,8158			
Other	16	4,3958			

According to the data presented in Table 5, there is a statistically significant difference between the course in which the participants reported being most successful during their school life and the scores they obtained from the "Planning" sub-dimension of the Self-Efficacy Inventory for Applying Problem-Solving Steps. The p-value obtained from the Kruskal-Wallis test is 0.002 ($p < 0.05$), and the fact that this value is well below the threshold for significance indicates a pronounced difference among the groups.

Table 6

Kruskal-Wallis Results for the "Implementation" Sub-Dimension of the Self-Efficacy Inventory for Applying Problem-Solving Steps According to the Course in Which Participants Were Most Successful During Their School Life

Courses	N	Mean	df	F	p
Mathematics	81	4,5185			
Turkish	58	4,3190			
Science Education	26	4,3365	4	3,056	,018
Social Studies	19	4,0658			
Other	16	4,3594			

According to the data presented in Table 6, a statistically significant difference was found between the course in which participants reported being most successful during their school life and the scores they received on the "Implementation" sub-dimension of the Self-Efficacy Inventory for Applying Problem-Solving Steps. The p-value obtained from the Kruskal-Wallis test is 0.018 ($p < 0.05$), indicating that self-efficacy levels related to implementation skills significantly vary according to different course preferences.

Below are the results showing the differences in the Social Problem-Solving Inventory (Short Form) and its sub-dimensions based on responses to the question, "Which of the following courses were you most successful in during your school life?"

Table 7

ANOVA Results of the Social Problem-Solving Inventory (Short Form) Based on the Course in Which Participants Were Most Successful During Their School Life

Courses	N	Mean	df	F	p
Mathematics	81	3,9370	4	1,771	,136
Turkish	58	3,9000			
Science Education	26	3,8769			
Social Studies	19	3,7237			
Other	16	4,1813			

According to the findings presented in Table 7, there is no statistically significant difference between the course in which participants reported being most successful during their school life and the scores they obtained from the Social Problem Solving Inventory (Short Form). The p-value obtained from the ANOVA analysis is 0.136, which is above the significance level of 0.05.

Table 8

ANOVA Results for the Decision Subscale of the Social Problem-Solving Inventory (Short Form) According to the Course in Which Participants Were Most Successful During Their School Life

Courses	N	Mean	df	F	p
Mathematics	81	4,1136	4	2,972	,021
Turkish	58	3,9483			
Science Education	26	3,9077			
Social Studies	19	3,7158			
Other	16	4,3500			

According to the data presented in Table 8, a statistically significant difference was found between the course in which participants reported being most successful during their school life and their scores on the Decision subscale of the Social Problem-Solving Inventory (Short Form). The p-value obtained from the ANOVA test was 0.021, which is below the 0.05 significance level, indicating a meaningful difference between the groups. In contrast, further analyses revealed no significant differences in the Identification, Alternatives, and Solution subscales.

Differences Between Participants' Professional Characteristics (Field, Professional Experience) and Skills, and the Environment in Which They Learn Best

Individuals' perceptions of competence regarding problem-solving processes may vary depending on their academic disciplines. In this context, understanding the extent to which teachers' self-efficacy in applying problem-solving steps differs according to their subject areas is crucial for structuring educational programs that are tailored to both individual and field-specific needs. Therefore, participants' scores on the Problem-Solving Steps Self-Efficacy Inventory were analyzed according to the variable of subject specialization.

Table 9

ANOVA Results of the Problem-Solving Steps Self-Efficacy Inventory According to Participants' Subject Areas

Subject	N	Mean	df	F	p
Classroom Teaching	37	4,3351			
Mathematics	40	4,4513			
English	47	4,3223	4	2,188	,072
Turkish	31	4,1258			
Science Education	45	4,2711			

According to the data presented in Table 9, there is no statistically significant difference in problem-solving self-efficacy levels among teachers from different subject areas. The p-value obtained from the ANOVA analysis is 0.072 ($p > 0.05$), which exceeds the threshold for statistical significance. While no differences were found in the sub-dimensions of "Understanding the Problem," "Planning," and "Monitoring," a significant difference was identified in the "Implementation" sub-dimension.

Table 10

ANOVA Results for the "Implementation" Sub-Dimension of the Problem-Solving Process Self-Efficacy Inventory According to Participants' Subject Areas

Subject	N	Mean	df	F	p
Classroom Teaching	37	4,3986			
Mathematics	40	4,6688			
English	47	4,2500	4	4,709	,001
Turkish	31	4,1694			
Science Education	45	4,3944			

According to the data presented in Table 10, a statistically significant difference was found in the scores obtained from the "Implementation" sub-dimension of the Problem-Solving Process Self-Efficacy Inventory based on the teachers' subject areas. The ANOVA test yielded a p-value of 0.001 ($p < 0.05$), indicating that participants' self-efficacy perceptions regarding implementation skills differ significantly across subject areas.

The following table presents the results indicating the differences between the participants' subject areas and their scores on the Social Problem-Solving Inventory (Short Form) and its sub-dimensions.

Table 11

Kruskal-Wallis Results for the Social Problem-Solving Inventory (Short Form) According to Participants' Subject Areas

Subject	N	Mean	df	p
Classroom Teaching	37	82,88		
Mathematics	40	116,85		
English	47	113,11	4	,002
Turkish	31	71,53		
Science Education	45	107,24		

According to the data presented in Table 11, there is a statistically significant difference in the scores obtained from the Social Problem-Solving Inventory (Short Form) based on the participants' subject areas. The p-value obtained from the Kruskal-Wallis test is 0.002 ($p < 0.05$), indicating a meaningful difference in social problem-solving competencies among teachers from different subject areas.

Table 12

Kruskal-Wallis Results for the Identification Subscale of the Social Problem-Solving Inventory (Short Form) According to Participants' Subject Areas

Subject	N	Mean	df	p
Classroom Teaching	37	89,38		
Mathematics	40	113,49		
English	47	108,55	4	,033
Turkish	31	75,92		
Science Education	45	106,62		

According to the data presented in Table 12, there is a statistically significant difference in the scores obtained from the Identification subscale of the Social Problem-Solving Inventory (Short Form) based on the participants' subject areas. The p-value obtained from the Kruskal-Wallis test is 0.033 ($p < 0.05$), indicating that there are meaningful differences in participants' abilities to identify social problems across different subject areas.

Table 13

ANOVA Results for the Option Generation Subscale of the Social Problem-Solving Inventory (Short Form) According to Participants' Subject Areas

Subject	N	Mean	df	F	p
Classroom Teaching	37	3,6649			
Mathematics	40	3,9300			
English	47	3,9319	4	3,906	,004
Turkish	31	3,4774			
Science Education	45	3,8622			

According to the data presented in Table 13, there is a statistically significant difference in the scores obtained from the Option Generation subscale of the Social Problem-Solving Inventory (Short Form) based on teachers' subject areas. The p-value obtained from the ANOVA test is 0.004 ($p < 0.05$), indicating that participants from different subject areas significantly differ in their ability to generate alternative solutions during the social problem-solving process.

Table 14

ANOVA Results for the Decision-Making Subscale of the Social Problem-Solving Inventory (Short Form) According to Participants' Subject Areas

Subject	N	Mean	df	F	p
Classroom Teaching	37	3,8865			
Mathematics	40	4,2300			
English	47	4,1660	4	4,281	,002
Turkish	31	3,6903			
Science Education	45	4,0178			

According to the data presented in Table 14, a statistically significant difference was found in the scores obtained from the Decision-Making subscale of the Social Problem-Solving

Inventory (Short Form) based on the teachers' subject areas. The p-value obtained from the ANOVA test is 0.002 ($p < 0.05$), indicating that individuals from different subject areas show significantly different levels of self-efficacy in decision-making during the social problem-solving process.

The following table presents the differences in the scores of the Problem-Solving Steps Self-Efficacy Inventory and its subscales based on participants' responses to the question "How many years have you been in the profession?"

Table 15

ANOVA Results for the Problem-Solving Steps Self-Efficacy Inventory According to Participants' Professional Seniority

Experience (Year)	N	Mean	df	F	p
1-7	73	4,3979	3	1,881	,134
8-15	74	4,2270			
16-22	34	4,2544			
23 and above	19	4,3789			

According to the data presented in Table 15, there is no statistically significant difference in the scores obtained from the Problem-Solving Steps Self-Efficacy Inventory based on the participants' years of professional experience (length of service in years). The p-value obtained from the ANOVA test is 0.134 ($p > 0.05$), indicating that the levels of problem-solving self-efficacy do not differ significantly across groups categorized by years of seniority.

Table 16

ANOVA Results for the "Planning" Subscale of the Problem-Solving Steps Self-Efficacy Inventory According to Participants' Professional Seniority

Experience (year)	N	Mean	df	F	p
1-7	73	4,4361	3	3,284	,022
8-15	74	4,2027			
16-22	34	4,1520			
23 and above	19	4,3596			

According to the data presented in Table 16, there is a statistically significant difference in the scores obtained from the "Planning" subscale of the Problem-Solving Steps Self-Efficacy Inventory based on teachers' years of professional experience. The p-value obtained from the ANOVA test is 0.022 ($p < 0.05$), indicating that professional seniority creates a difference in self-efficacy perceptions related to planning skills. No statistically significant difference was found in the subscales of understanding, implementation, and evaluation.

The following table presents the results showing the differences between the scores on the Social Problem-Solving Inventory (Short Form) and its subscales according to participants' responses to the question "How many years have you been in the profession?".

Table 17

Kruskal-Wallis Results for the Social Problem Solving Inventory (Short Form) According to Participants' Professional Seniority

Experience (year)	N	Mean	df	p
1-7	73	107,10	3	,665
8-15	74	96,24		
16-22	34	95,85		
23 and above	19	100,05		

According to the data presented in Table 17, there is no statistically significant difference in the scores obtained from the Social Problem-Solving Inventory (Short Form) based on the participants' professional seniority. The p-value obtained from the Kruskal-Wallis test is 0.665 ($p > 0.05$), which is well above the level of significance.

Table 18

Kruskal-Wallis Results for the "Problem Definition" Subscale of the Social Problem-Solving Inventory (Short Form) According to Participants' Professional Seniority

Experience (year)	N	Mean	df	p
1-7	73	108,97	3	,040
8-15	74	85,35		
16-22	34	107,59		
23 and above	19	114,26		

According to the data presented in Table 18, there is a statistically significant difference in the scores obtained from the "Problem Definition" subscale of the Social Problem-Solving Inventory (Short Form) based on teachers' years of professional experience. The p-value obtained from the Kruskal-Wallis test is 0.040 ($p < 0.05$), indicating that teachers' self-efficacy perceptions regarding their ability to define social problems vary significantly depending on their level of professional experience. No significant differences were found in the "Generating Alternatives," "Decision Making," or "Solution Implementation" subscales.

Below are the results showing the differences in scores from the Problem-Solving Steps Self-Efficacy Inventory and its subscales based on the course that participants reported as having most contributed to their development in problem-solving.

Table 19

ANOVA Results for the Problem-Solving Steps Self-Efficacy Inventory According to the Course That Most Contributed to Participants' Problem-Solving Skills

Courses	N	Ortalama	df	F	p
Mathematics	74	4,3338	4	,942	,441
Turkish	38	4,2079			
Science Education	43	4,2942			
Social Studies	35	4,4071			
Other	10	4,2200			

According to the data presented in Table 19, there is no statistically significant difference in the scores obtained from the Problem-Solving Steps Self-Efficacy Inventory based on the course that participants believe contributed the most to their development in problem-solving. The p-value obtained from the ANOVA test is 0.441 ($p > 0.05$), which is well above the significance threshold, indicating that there is no meaningful difference between the groups. Furthermore, the analyses revealed no statistically significant differences in the subscales of the inventory.

The development of individuals' social problem-solving skills may be influenced by different courses and learning environments. In this context, the course that individuals believe contributed most to the development of their problem-solving skills may be associated with their level of social problem-solving. Accordingly, it was examined whether participants' scores from the Social Problem-Solving Inventory (Short Form) differed based on their responses to the question, "Which course do you think contributed the most to your development in problem-solving?"

Table 20

Kruskal-Wallis Results for the Social Problem-Solving Inventory (Short Form) According to the Course That Contributed the Most to Participants' Problem-Solving Skills

Courses	N	Mean	df	p
Mathematics	74	98,76		
Turkish	38	84,91		
Science Education	43	114,93	4	,106
Social Studies	35	109,37		
Other	10	79,55		

According to the data presented in Table 20, there is no statistically significant difference in the Social Problem-Solving Inventory (Short Form) scores based on the course that participants believe contributed the most to the development of their problem-solving skills. The p-value obtained from the Kruskal-Wallis test is 0.106 ($p > 0.05$), indicating that this difference is not statistically significant.

Table 21

Kruskal-Wallis Results for the "Problem Definition" Subscale of the Social Problem Solving Inventory (Short Form) According to the Course That Contributed the Most to Participants' Problem-Solving Skills

Courses	N	Mean	df	p
Mathematics	74	100,03		
Turkish	38	80,89		
Science Education	43	105,57	4	,036
Social Studies	35	121,44		
Other	10	83,35		

According to the data presented in Table 21, a statistically significant difference was found in the scores of the "Problem Definition" subscale of the Social Problem-Solving Inventory (Short Form) based on participants' responses to the question "Which course do you think contributed the most to the development of your problem-solving skills?". The p-value obtained from the Kruskal-Wallis test is 0.036 ($p < 0.05$), indicating that different courses have a significantly differentiated impact on individuals' abilities to define social problems.

Individuals' social problem-solving skills are shaped not only by academic knowledge but also by the social contexts they encounter in everyday life. Especially environments such as family, school, workplace, and peer groups structure individuals' problem-solving experiences and support the development of these skills. Therefore, this study also investigated how individuals' perceptions of the "environment in which they learned problem-solving best" are reflected in their social problem-solving abilities.

Table 22

ANOVA Results for the Social Problem-Solving Inventory (Short Form) According to the Environment in Which Participants Learned Problem-Solving Best

Environment	N	Mean	df	F	p
Family	48	3,9875	4	,883	,475
School	32	3,8391			
Workplace	82	3,8738			
Peer Groups	31	3,9581			
Other	7	4,1357			

According to the data presented in Table 22, there is no statistically significant difference in the Social Problem-Solving Inventory (Short Form) scores based on participants' responses to the question "In your opinion, which environment is the best for learning problem-solving?". The p-value obtained from the ANOVA analysis is 0.475 ($p > 0.05$), indicating that different social environments do not have a statistically significant effect on social problem-solving competence.

Results and Discussion

The primary aim of this study is to examine the relationship between teachers' problem-solving self-efficacy and their social problem-solving skills, and to determine whether these skills vary according to various individual, familial, academic, and professional variables. The findings revealed that teachers' individual problem-solving competencies are strongly and positively correlated with their social problem-solving abilities. This result aligns with the study by Orakcı, Göksu, and Karagöz (2022), which identified a positive relationship between teachers' self-efficacy levels and their classroom flexibility skills. Similarly, this finding highlights the important role of individual cognitive processes in transforming into effective forms of communication and interaction within social contexts. The ability of teachers to utilize individual strategies in resolving social issues encountered in their daily professional lives can be decisive in both student relationships and colleague interactions within educational environments. Moreover, the study conducted by Debalos and Oco (2025) among Filipino teachers also demonstrated that self-efficacy beliefs are closely related to 21st-century skills such as social problem-solving and professional resilience.

However, some studies suggest that this relationship does not always occur at the expected level. For instance, the research by Kurnaz and Gümüş (2022) showed that teachers with high self-efficacy levels were not equally competent in their social problem-solving skills. Among the potential reasons for this discrepancy is the nature of the data collection tools used; the exclusive use of self-report forms and the absence of behavioral observation data in those studies may have increased the risk of bias in the assessments.

In the current study, particularly the subdimensions of the problem-solving process, namely "implementation" and "monitoring," were found to be highly correlated with the subdimensions of social problem-solving. Contextual framing supports the social problem-solving model of D'Zurilla and Nezu (2010), which emphasizes that producing solutions in social contexts requires not only intention but also strategic and evaluative competence. Likewise, Heppner and Petersen's (1982) Problem Solving Inventory shows that individual problem-solving strategies significantly affect levels of social competence.

Studies conducted on teacher candidates (Gündoğdu & Bahar, 2008; Özdemir & Ayvaz, 2015) and those involving in-service teachers (Ekinci, 2021; Öztürk, 2023) validate the connection between individual and social problem-solving competencies. Notably, Ekinci's (2021) findings underscore that senior teachers' perceptions of self-efficacy are a determining factor in resolving problems encountered in social contexts.

Nevertheless, other studies have yielded different results. Kurnaz and Gümüş (2022) found that teachers with a high sense of self-efficacy did not demonstrate the expected competence in social problem-solving. This finding suggests that social problem-solving involves not only cognitive processes but also effective and communicative competencies. Similarly, Yıldız and Altunkaya (2021) noted that teachers' social problem-solving skills vary depending on emotional factors and the quality of the school environment.

Regarding demographic variables such as gender and age, the findings indicate no significant differences in problem-solving competencies. This outcome is supported by Çelik and Yavuzer (2020) and Arslan (2002). However, some studies claim that female teachers exhibit more advanced social problem-solving skills compared to male teachers (Yıldız & Altunkaya, 2021). These differences are thought to be explainable through gender roles, cultural norms, and social expectations.

In terms of familial factors, the problem-solving strategies observed within the family environment, particularly at the implementation level, yield meaningful outcomes. The finding that individuals who perceive their fathers as more effective problem solvers have higher implementation scores demonstrates the impact of observational learning within Bandura's (1997) social cognitive theory. Recent studies also support this perspective.

Another finding of the study is that teachers working in Mathematics and Science disciplines scored higher in the "planning" and "implementation" subdimensions compared to teachers in other subject areas. This result is consistent with the literature suggesting that disciplines heavily reliant on systematic and analytical thinking contribute positively to the problem-solving process (Güneş, 2015; Jaipal-Jamani, 2024). However, this finding was not observed in Ekinci's (2021) study, which found no significant difference in problem-solving competencies according to teachers' subject areas. The inconsistency may be due to methodological issues such as sample imbalance (e.g., the low number of Mathematics teachers) and limited statistical power in Ekinci's research.

On the other hand, Erdem and Akbaş (2022) argued that in-service teachers' academic achievements do not directly translate into social problem-solving skills. This contradiction suggests that academic achievements, when limited to the acquisition of knowledge, may not necessarily lead to social competence.

Similarly, the study found that professional seniority was not a determinant across all subdimensions but only showed significant differences in the "planning" and "identifying" subdimensions. This suggests that teacher seniority does not always confer direct competence but may exert selective effects on certain skills. The findings of Yılmaz and Kaya (2022) support this, indicating that social problem-solving skills may vary depending on teachers' seniority. Conversely, Tümkaya, Aybek, and Aldağ (2009) did not find a significant relationship between teachers' professional seniority and their problem-solving skills. This discrepancy may stem from methodological limitations, such as the focus on early and late

career stages and the exclusion of mid-level career groups, potentially overlooking transitional levels of competence.

These contradictory findings demonstrate that the relevant literature is still evolving and that teacher competencies must be addressed in conjunction with individual, contextual, and disciplinary components. Indeed, this study aims to clarify fragmented findings in the literature by testing these variables within a holistic framework. Tümkaya, Aybek, and Aldağ (2009) also did not find a significant relationship between seniority and problem-solving skills. Therefore, it is recommended that the impact of professional experience be evaluated alongside variables such as in-service training, job satisfaction, and organizational support.

The established relationship between individual problem-solving self-efficacy and social problem-solving skills underscores the importance of social competence alongside pedagogical proficiency in the teaching profession. It is critically necessary to restructure teacher education programs through a holistic approach that incorporates not only cognitive skills but also effective, social, and professional orientations, in order to enhance the quality of the educational system.

Recommendations

Recommendations for Teachers

- It is recommended that in-service training programs incorporate modules specifically focused on social problem-solving to enable teachers to apply their individual problem-solving strategies effectively in social contexts.
- Regardless of professional seniority, it is advised to design social skills workshops for all teachers that include components such as affective awareness, empathy, and effective communication skills.
- Particularly in the dimensions of "decision-making" and "solution generation" within social problem-solving, it is recommended to promote professional development through case-based training programs.

Recommendations for Teacher Education Programs

- Given the observed differences in cognitive and social problem-solving skills among teacher candidates from various academic disciplines, it is recommended to develop modular training content tailored to specific subject areas.
- During teaching practicum courses, it is advised to systematically observe candidates' social problem-solving performance and provide structured feedback to support their development.
- It is further recommended that the competency frameworks for teaching explicitly incorporate "social problem-solving" as a distinct skill area and integrate it into evaluation and assessment systems.

Recommendations for Educational Policymakers and Decision Makers

- It is recommended that the Ministry of National Education integrate constructs such as social problem-solving and self-efficacy into the Teaching Profession Law and teacher competency frameworks in a clear and measurable manner.
- School-based professional development programs should include collaborative platforms with a focus on social problem-solving (e.g., professional learning communities, peer observation systems).

- It is advised to utilize multidimensional evaluation tools that assess both individual and social problem-solving competencies in teacher recruitment and evaluation processes.
- In-service training programs for in-service teachers should include specialized modules aimed at discipline-based social problem-solving strategies (e.g., linking mathematical reasoning to conflict resolution in social settings).
- To promote peer learning among teachers, it is recommended to establish internal "peer coaching" programs that facilitate the exchange of social problem-solving experiences.

Recommendations for Researchers

- Future research should include mixed-method studies that comparatively investigate both teacher candidates and in-service teachers.
- Longitudinal studies that address the affective, cognitive, and social dimensions of the problem-solving process are recommended to reveal developmental patterns.
- It is also advised to encourage research employing multivariate modeling to examine the relationship between social problem-solving skills and contextual factors such as school culture, leadership style, organizational climate, and job satisfaction.

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Ethical Standards

The study was carried out within the framework of the Helsinki Declaration. Participants' consent was obtained. In addition, necessary permissions were obtained for data collection in schools.