

# Problem Solving and Emotional Self-Efficacy: Examining in Terms of Variables\*

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In this study, it was aimed to determine how the emotional self-efficacy and problem-solving skills of high school students differ according to demographic variables. The study group of the research consists of 394 high school students. 'Sociodemographic Information Form', 'Problem Solving Skills Inventory' and 'Emotional Self-Efficacy Scale' were used to collect data. In the analysis of the data, Independent Groups t-Test, Kruskal Wallis H test, One-Way Analysis of Variance were used. It was found that the problem solving inventory scores showed a significant difference in favor of men according to gender, and in favor of those who rarely get angry according to the status of irritability. It was determined that Emotional Self-Efficacy Scale scores differed significantly in favor of the loved ones most of the time, for the variable of the frequency of consulting someone when there was an unsolved problem, sometimes and mostly in favor of the clients.

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## INTRODUCTION

Problem solving can be defined as the process of creating various solutions that can be used to solve a particular problem in relation to a problematic situation (Zurilla & Goldfried, 1971: 10). On the other hand, Heppner and Krauskoph (1987: 375) defined problem solving as behavioral or cognitive responses revealed by all mental and affective processes put forward in order to adapt to the needs and obstacles that arise due to individual and environmental factors. The problem-solving process is complex and has specific steps. Awareness of the problem is the first condition for starting the problem-solving process. In order for an event or situation to become a problem for someone, it must create a disturbing emotion (Oncu, 2019: 18).

A solution is a specific coping response or response pattern which can solve a problem when applied to a situation that can be described as a problem. An effective solution has the goal of solving the problem (by removing the obstacle or reducing the emotional distress which it produces), while also maximizing other positive outcomes and minimizing negative outcomes. The solution of the problem includes both personal and social factors, but it can be long-term or short-term according to its level of permanence. An effective solution, with specific reference to an interpersonal problem, resolves the conflict or disagreement by providing an acceptable or satisfactory outcome for all parties involved (D'Zurilla et al., 2004: 13).

People with a positive attitude to problem-solving approach problems as follows; they perceive problems as a kind of challenge; they have a positive view that the problems are solvable; they believe that they have the power to solve the problems that they face; and they know that solving the problem that they face requires a specific amount of time and effort. People with a negative problem-solving approach, on the other hand, think that problems are a threat or danger, they are generally pessimistic about the problems and they think that it is impossible to solve them, they think that their problem-solving skills are weak, and they experience negative emotions when faced with a problem (Nezu, 2004).

Bandura stated that problem-solving skills are acquired by imitating the behaviors that an individual learns after observing others. Bandura combined this view with a theory called the proficiency model, and said that people's perceptions and beliefs about their own problem-solving skills have an effect on their problem-solving skills and on the effort of individuals to solve a problem. Based on this, it can be said that the self-perception of the individual is effective on his or her problem-solving skills (Taylan, 1990: 29-31).

Phips Mountrose (2000), on the other hand, emphasized the importance of emotional factors in problem-solving processes. He stated that when adults encounter a problem, their approach to others such as 'do this, not this' might prevent children from being exposed to the processes involved in problem solving and developing their own problem-solving skills. He emphasized the importance of allowing individuals to develop their own problem-solving skills (Mountrose, 2000: 45).

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### *Emotional Self-Efficacy*

The emotional self-efficacy concept is a new concept which emerged as a result of combining the concepts of emotional intelligence and self-efficacy (Totan, İkiz & Karaca, 2010: 73-74). Combining these two concepts, Petrides and Furnham (2000; 2001; 2003) stated that there are two main emotional intelligence phenomena and there are some differences between them. Petrides and Furnham (2003) stated that emotional intelligence includes thoughts about emotional functioning and perceptions of one's self regarding emotional skills. They also suggested that emotional intelligence can be usefully conceptualized as a trait or typical function as well as other mechanisms. One of these is emotional intelligence, which is defined as a personal trait. This concept has been conceptualized as emotional self-efficacy. The other is emotional intelligence as a cognitive concept. This concept has been conceptualized as a cognitive-emotional skill. Emotional self-efficacy is the formation of a belief about these abilities as a result of the evaluation of the abilities that someone perceives towards himself/herself. One is defined as a trait whereas the other refers to having cognitive abilities related to emotion (Petrides et al., 2006). Emotional self-efficacy includes a subjective self-evaluation of one's own emotional competence in the field of emotion regulation (Alessandri, 2014: 25). It is therefore thought that emotional self-efficacy supports the temperament and subjective well-being of the individual positively (Totan et al., 2010: 45). Emotional self-efficacy is the ability to cope with negative emotions. It encompasses the skills of the individual to avoid negative emotional states (for example, avoiding irritability and suppressing negative thoughts) or returning to a normal emotional state (for example, self-talk to gain a positive attitude, calming when you are afraid or worried) when experiencing negative emotions (Valois, 2008: 322).

The ability of the individual to perform emotional processes in a healthy way affects the level of harmonious and incompatible emotional functionality. It is thought that the use of intelligence in the same sense as emotional self-efficacy, which is considered as a personality trait, is an inappropriate generalization. Emotional self-efficacy can only be regarded as a feature when emotional intelligence is considered as a personality trait, since different factors might arise which could affect the individual's perception of the level of emotional functionality (Kirk, Schutte & Hine, 2008: 432). Emotional self-efficacy consists of four basic building blocks. The first building block is the ability to recognize, perceive, comprehend, sense, interpret and explain emotion completely and accurately from a person's facial expression, body language and tone of voice. It includes evaluating, recognizing and distinguishing emotion with non-verbal communication methods. The second building block emphasizes the extent to which emotions support thought; it is the ability to reach or produce emotions when needed. The third building block is the ability to understand emotions and information gathered through emotions; it includes analysing emotions, predicting situations which might be related to each other in the process, and understanding the results. The fourth building block is the ability to regulate emotions in a way that drives emotional and intellectual growth; it includes the management of emotions within the scope of one's goals, self-knowledge and awareness level (Izard, 2001; Totan et al., 2010; Mayer 2004: 199). With emotional self-efficacy, the person gains the ability to control his emotional state by calming himself or gaining a more positive perspective (Hessler & Fainsilber Katz, 2010: 242).

The ability of individuals to solve the problems which they encounter throughout life will both increase their happiness level and be an important skill that can be used to overcome the problems which they experience (Demir, 2019). It is thought that especially the emotional characteristics of an individual may be effective on the problem-solving processes. In this process, it can be said that the perception, interpretation and evaluation of a person's emotional skills are of great importance. Self-efficacy is a dynamic phenomenon which changes during the process with knowledge and experience; it focuses on people's ability to perform a task successfully and their personal judgments about that ability. Although individuals might have high self-efficacy for some tasks, they may have low self-efficacy for others (Totan et al., 2010 ; Kirk et al., 2008: 432). In this context, it is thought that determining the relationship between emotional skills and problem-solving skills will be very important in order to better explain the factors affecting the problem-solving processes of individuals.

## METHOD

The research was designed using the "relational screening model", which is within the scope of general screening models, in order to evaluate the relationship between emotional self-efficacy and problem-solving skills in high school students.

### Study group

The sample of the study consists of 394 high school student. The participants to be included in the study group of the research were determined by the 'Purpose Sampling' method. This method is based on the principle of creating the required number of sample groups in a short time, the easiest way to reach during the research process, the easiest way when considered in terms of time, labor or cost. The sample of the study included 126 girls (32.0%) and 268 boys (68.0%). While there are 385 (98%) mothers whose mothers are alive, 8 (2%) mothers are not. There are 143 (36.6%) people whose mothers have primary school or lower education, 99 (25.3%) secondary school graduates, 86 (22.0%) high school graduates and 63 (16.1%) university graduates. His father was educated at primary school and below. There are 81 (20.7%) people, 85 (21.7%) secondary school graduates, 86 (22.0%) high school graduates and 139 (25.5%) university graduates. 16 people (4.1%) with only one child, 126 people (32.1%) with two children, 234 people (59.5%) with 3-5 children, and 17 people (4%) with more than 5 children. 4) there are people. There are 369 (95.3%) and 18 (4.7%) unemployed people. According to the status of being liked among their friends, the participants stated their answers as 321 (81.9%) often, 60 (15.3%) sometimes and 11 (2.8%) rarely. According to irritability, the participants stated their answers as 176 (44.8%) often, 156 (39.7%) sometimes, and 61 (15.5%) rarely. According to their socioeconomic status, the participants were 71 (18.1%) high, 308 (78.4%) medium and 14 (3.6%) low. 373 (95.9%) of the parents of the participants were together and 16 (4.1%) were separated or divorced. According to the frequency of consulting someone when there is an unresolved problem, the participants stated their answers as 178 (45.2%) often, 159 (40.4%) sometimes and 57 (14.5%) rarely.

### Data collecting tools

#### *Problem Solving Inventory*

The Problem Solving Inventory (original name Problem Solving Inventory, Form-A) developed by Heppner and Petersen (1982) measures how he perceives himself in terms of problem solving skills (Example items; I examine my emotions to understand how I feel when faced with a problem; After making a decision, the outcome usually matches the outcome I expected) There are 35 items in total in the scale. These items are answered with a 6-point Likert scale ranging from 1 to 6 as (1) Totally Agree, (2) Partially Agree, (3) Very Little Agree, (4) Slightly Disagree, (5) Partially Disagree, and (6) Totally Disagree.

#### *Emotional Self-Efficacy Scale*

It was developed by Qualter, Pool, Gardner, Ashley-Kot, Wise, and Wols (2015) to measure the emotional self-efficacy of individuals (Example items; Change your negative emotion to a positive emotion; Know what causes you to feel a negative emotion). The scale consists of 27 items prepared in 5-point Likert type. Items (1) Strongly disagree (2) Disagree (3) Undecided (4) Agree (5) Strongly agree. A minimum of 27 and a maximum of 135 total points can be obtained from the scale. High scores on the scale indicate high emotional self-efficacy and low scores indicate low self-efficacy.

## RESULTS

In Table 1, the t-Test results of independent groups regarding the comparison of the mean scores of the Problem Solving Inventory and the Emotional Self-Efficacy Scale according to the gender variable are given.

Table 1. Independent Groups t-Test Results on Comparison of Problem Solving Inventory and Emotional Self-Efficacy Scale Mean Scores

Scale	Variable	n	$\bar{x}$	sd	t	df	p
Problem Solving Inventory	Female	126	130,56	16,14	-2,022	392	<b>,044*</b>
	Male	268	134,12	16,40			
Emotional Self-Efficacy Scale	Female	126	85,54	17,61	-,625	392	,532
	Male	268	86,85	20,11			

\*p&lt;0,05; \*\*p&lt;0,01

It was determined that the mean score of the Problem Solving Inventory differed significantly according to the gender variable ( $t(392)=-2.022$ ;  $p<0.05$ ). Problem Solving Inventory mean scores of male participants were higher than female participants. It was determined that the mean scores of the Emotional Self-Efficacy Scale did not show a statistically significant difference according to the gender variable ( $p>0.05$ ).

Table 2. Kruskal Wallis H Test Results Regarding the Comparison of Problem Solving Inventory and Emotional Self-Efficacy Scale Scores According to the Variable of Lovedness Among Friends

Scale	Variable	n	SO	H	$X^2$	df	p	Difference
Problem Solving Inventory	Most of the time	321	200,11	1,854	,094	2	,396	-
	Sometimes	60	178,80					
	Rarely	11	187,82					
Emotional Self-Efficacy Scale	Most of the time	321	203,27	7,637	2,682	2	<b>,022*</b>	<b>1&gt;3</b>
	Sometimes	60	172,47					
	Rarely	11	130,00					

\*p&lt;0,05; \*\*p&lt;0,01

In Table 2, Kruskal Wallis H test results regarding the comparison of Problem Solving Inventory and Emotional Self-Efficacy Scale scores according to the variable of being liked among friends are given. It was determined that the scores of the Emotional Self-Efficacy Scale differed statistically according to the variable of being liked among friends ( $H(2,682)=7.637$ ;  $p<0.05$ ). It was observed that the Emotional Self-Efficacy Scale scores of the participants who stated that they were loved most of the time were higher than those who stated that they were rarely loved. It was determined that the Problem Solving Inventory scores did not show a statistically significant difference according to the variable of being liked among friends ( $p>0.05$ ).

Table 3. ANOVA Results Regarding the Comparison of the Problem Solving Inventory and Emotional Self-Efficacy Scale Mean Scores

Scale	Variable	n	$\bar{x}$	sd	F	df	p	Difference
Problem Solving Inventory	Most of the time	176	131,99	16,00	4,115	2	<b>,017*</b>	<b>3&gt;1</b>
	Sometimes	156	131,86	16,17				
	Rarely	61	138,42	17,17				
Emotional Self-Efficacy Scale	Most of the time	176	84,45	19,25	1,875	2	,155	
	Sometimes	156	87,61	19,18				
	Rarely	61	89,27	19,85				

\*p&lt;0,05; \*\*p&lt;0,01

Table 3 shows the results of the ANOVA test for comparing the mean scores of the Problem Solving Inventory and the Emotional Self-Efficacy Scale according to the variable of irritability.

It was determined that the mean scores of the Problem Solving Inventory differed statistically significantly according to the variable of irritability ( $F(3-390)=4.115$ ;  $p<0.05$ ). Scheffe test was used to determine the differences between groups. It was observed that the Problem Solving Inventory scores of the participants who stated that they rarely got angry quickly were higher than the participants who stated that they were often and sometimes quickly angry.

It was determined that the mean scores of the Emotional Self-Efficacy Scale did not show a statistically significant difference according to the variable of irritability ( $p>0.05$ ).

Table 4. ANOVA Results Regarding the Comparison of the Problem Solving Inventory and Emotional Self-Efficacy Scale Mean Scores

Scale	Variable	n	$\bar{x}$	sd	F	df	p	Difference
Problem Solving Inventory	Most of the time	178	134,83	17,75	3,721	2	,026* <sup>a</sup>	1>3
	Sometimes	159	132,78	14,21				
	Rarely	57	127,77	16,75				
Emotional Self-Efficacy Scale	Most of the time	394	132,98	16,38	4,773	2	,010* <sup>a</sup>	1>2 1>3
	Sometimes	178	88,07	21,66				
	Rarely	159	86,78	17,40				

\* $p<0,05$ ; \*\* $p<0,01$

Table 4 shows the results of the ANOVA test for comparing the mean scores of the Problem Solving Inventory and the Emotional Self-Efficacy Scale according to the variable of the frequency of consulting someone when there is an unsolved problem. It was determined that the mean scores of the Problem Solving Inventory differed statistically according to the frequency of consulting someone when there was an unsolved problem ( $F(2-153,868)=3.721$ ;  $p<0.05$ ). Since the variances were not homogeneous, the Welch test was applied and the Tamhane t2 test was used to determine the difference between the groups. It was observed that the Problem Solving Inventory scores of the participants who stated that they consulted most of the time were higher than the participants who stated that they rarely consulted.

It was determined that the mean scores of the Emotional Self-Efficacy Scale differed statistically according to the variable of the frequency of consulting someone when there was an unsolved problem ( $F(2-171,324)=4.115$ ;  $p<0.05$ ). Due to the inhomogeneity of the variances, the Welch test was applied and the Tamhane t2 test was used to determine the difference between the groups. It was observed that the Emotional Self-Efficacy Scale scores of the participants who stated that they consulted most of the time were higher than the participants who stated that they consulted sometimes and rarely.

## Conclusion and Discussion

As a result of the research, it was seen that the Problem Solving Inventory scores differed according to gender and that the males had a higher perception of problem-solving skills than the female participants. There are various results reported in the literature regarding whether or not problem-solving skills differ according to gender. Aydın, İmamoğlu and Yukay (2005) found that the gender variable made a difference only in the avoidance-approach dimension of problem solving, and that this difference was in favor of men. Gallagher, De Lisi, Holst, McGillicuddy-De Lisi, Morely and Cahalan (1999) found that boys perceived themselves to be more competent than girls in terms of cognitive processes.

Hatay, Polat and Tümkaya (2010), Bulut, Serin and Derin (2008), Cenkseven and Akar Vural (2006), Savcı and Aysan (2014) and Tamres, Janicki and Helgeson (2002) all found that female participants had more problem solving skills than they perceived themselves to have. Terzi (2003), however, found no significant gender difference in his study with primary school students.

As a result of the findings of the current study, it was seen that the Emotional Self-Efficacy Scale scores of the participants who stated that they were loved most of the time were higher than those who stated that they were rarely loved. In other words, according to this finding, the emotional self-efficacy levels of adolescents whose love and attention needs were met were higher. Studies among adolescents and young adults have shown that self-efficacy in managing negative emotions is associated with higher self-esteem, fewer depressive symptoms, higher life satisfaction, greater optimism and less criminal behavior (Bandura, Caprara, Barbaranelli, Gerbino & Pastorelli, 2003; Caprara & Steca, 2005; Gunzenhauser et al., 2013).

It was found that the Problem Solving Inventory scores of the participants who stated that they rarely got angry quickly were higher than those of the participants who stated that they were often and sometimes quickly angry. In other words, anger as a problem reduced the problem-solving skills of some individuals. In this context, it is important for psychological counselors working in schools to work on anger management.

Problem-solving skills and emotional self-efficacy levels differ significantly according to the frequency of consulting someone. In other words, individuals who consult someone have higher problem-solving skills and emotional self-efficacy levels. This result shows how important social support is in problem-solving skills and emotional self-efficacy. Deniz (2015) reported that participants who consulted others frequently when there is a problem had higher emotional self-efficacy. In a similar study, Telef (2011) concluded that the academic, social, emotional and general self-efficacy levels of adolescents who received help from the guidance service were higher than those who did not.

Psychological counselors and guidance teachers working with adolescents can make interventions which will enable students to develop their problem-solving skills and emotional self-efficacy. This study was conducted with students studying at the high-school level. In order to be able to generalize research results to other groups, future studies could be conducted with participants with different demographic characteristics. It is recommended that training sessions and conferences should be planned for high-school students in order to help them to understand how important their problem-solving skills and emotional self-efficacy are in terms of psychological well-being, and to add activities and studies which can support their personal development to the study plans organized by school psychological counseling and guidance teachers. Child-rearing attitudes, which are of great importance in terms of raising individuals who are extremely important for the future of society, in a psychologically healthy way, should be made more widespread in parent education; family counseling studies should be increased and training should be planned for teachers. It is thought that this would significantly contribute to the development of children who are raised by knowledgeable, aware and conscious parents as individuals with higher problem-solving skills and emotional self-efficacy in the future. The research results are limited to the data collected from 394 high school students. The results of the research consist of data collected from high school students between 2018-2019. The data collected in the study is limited to the data collected by the Problem Solving Skills Scale and the Emotional Self-Efficacy Scale.

#### **Declarations**

#### **Conflict of Interest**

No potential conflicts of interest were disclosed by the author(s) with respect to the research, authorship, or publication of this article.

#### **Ethics Approval**

The formal ethics approval was granted by the Social and Human Sciences Research and Publication Ethics Committee of İstanbul Sabahattin Zaim University. We conducted the study in accordance with the Helsinki Declaration in 1975.

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#### **Research and Publication Ethics Statement**

The study was approved by the research team's university ethics committee of the İstanbul Sabahattin Zaim University (Approval Number/ID: 20292139-050.01.04). Hereby, we as the authors consciously assure that for the manuscript "Examining The Relationship Between Problem Solving And Emotional Intelligence Among College Students" the following is fulfilled:

- This material is the authors' own original work, which has not been previously published elsewhere.
- The paper reflects the authors' own research and analysis in a truthful and complete manner.
- The results are appropriately placed in the context of prior and existing research.
- All sources used are properly disclosed.

#### Contribution Rates of Authors to the Article

This study was produced from Hilmi Tunahan Gök's master thesis.

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