Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.7, No.14, 2016

Analysis of 4th Grade Students' Problem Solving Skills in Terms of Several Variables

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Abstract
The aim of this study is to examine if the level of primary school students in solving problems differs according to some demographic variables. The research is descriptive type in the general survey method, it was carried out with quantitative research techniques. The sample of the study consisted of 587 primary school students in Grade 4. The data of the study was obtained by applying "Problem Solving Inventory for Primary School Children", developed by Serin, Bulut-Serin and Saygılı (2010). To analyze the data, t-test, was used to determine differences in test, after one-way ANOVA test Scheffer as complementary post-hoc analysis was used. The results of the analysis show a significant difference in terms of maternal educational level and type of school according to scale total scale scores of problem solving skill ($p<0.05$). No significant difference was found in terms of gender and level of parental education status ($p>0.05$). As a result of the research, organizing supportive trainings for the children experiencing shortage of problem solving skills have been suggested to their parents and teachers.
Keywords: Problem solving, Elementary school students, 4th grade.

1. Introduction

Today, advances in science and technology affect society life, its structure and education and all devevopmental areas of individuals. Therefore, it is important to prepare children who keep up with change, have critical thinking, are creative, find effective solutions to the problems that they face and contribute to the society they live in. This will be possible through making children gain problem-solving skills at an early age.

Problem that has the same meaning with trouble is described as a matter that should be thought, searched, learnt and led to a conclusion. Also, problem is the state of being unable to show proper and effective response against the difference between the situation that one is in and the situation which one intends to be in. Kılıc and Koc (2003) argues that problem is the conflict that a person experience as a result of prevention in achieving the goal he sets. These conflicts and preventions make individual physically and mentally unease**.** Existence of more than one possibility of solution causes a person to experience difficulty in making effective choice process that will lead him to a positive result (Karasar, 2000:54; D'Zurilla ve Goldfried, 1971). Problem solving in such a case is to find the most effective way to clear the hurdle. In other words, it is the state of being aware of what is to be done in the cases where it is not clear what to be done. (Kılıc ve Koc, 2003). According to Ulkuer, (1988) problem solving is a process to deal with a problem a person faces while he is trying to reach a goal (akt. Serin, Bulut-Serin ve Saygılı, 2010). Problem solving process involves skills, including cognitive, affective and behavioral characteristics. These skills include many operations such as social and academic adjustment of the individual, self-confidence, decision-making styles, the effectiveness of communication skills, trial and error, analysis, synthesis, finding the cause-effect relationship, learning concepts and principles. While performing these operations, individuals both use the old information and achieve new learning (Güven, 2000, s.29; Korkut, 2002; Deniz, Arslan ve Hamarta, 2002; McCabe, 1999; Zembat & Unutkan, 2003, s. 221; Heppner & Petersen, 1982; Polat & Tümkaya, 2010). Problem solving process consists of the subsequent stages. The first stage of the process, is to be aware of the problem. Many things such as a question being directed by a friend, a homework given by the teacher might be a problem. The important thing here is that the experienced situation disturbd him and he notices this discomfort. If the situation does not bother him, he does not realize it, and it causes no problems. The second step is to define the problem. In this stage the problem sources are determined. In the third step, alternative routes are determined to solve the problem. In the final stages of problem solving is the elimination of the problem situation through using one or several of the identified solutions. (Gelbal, 1991). Yıldız ve Ekşisu (2011) have reviewed problem-solving process in five stages; Recognition of the problem, defiyning the problem, analyzing the problem, developing alternative solutions, implementing the chosen solution and evaluating the results. (Yildiz, 2006). However, there are many factors affecting the resolution of a problem. These; individual intelligence, thoughts, feelings, perceptions, personality characteristics, traditions and customs, self-confidence, past life and experiences, and parental attitudes, the degree of knowledge or training for a solution, creativity, ability, health, benefits for individual solutions, and societal expectations. (Gelbal, 1991;

Kasap 1997; Akkaya; 2012; Senemoğlu, 2000: 543; Kulaksızoğlu, 1998:117-122; Güçlü, 2003).

Encountering the problem and trying to find a solution is not only for a specific period or age, people of all ages period, face some problems they have to solve. (Taylor, 1990). That's why, individuals are required to have problem-solving skills in order to continue their social life at every stage of life, from childhood to adulthood in a harmonious way. Children first begin to learn social skills by communicating with their family.

Problem-solving skills that can be developed through learning at a young age is shaped by modelling the problems that parents have experienced in social life, events and situations and their problem solving initiatives. Therefore, family members should be a right model for their children as good problem solvers who are sensitive for troubles. However, the child who involves in the education system after his first years in the family feels the need to solve the many problems he faces in the new school environment. So, in this processs teacher should guide him as a good advisor in this regard. He should discover and develop child's skills through effective training environment that makes problem solving possible. Because problem-solving is a skill that can be learned and developed through training (Heppner ve Petersen, 1982; Webster-Stratton, 2005). If children are trained on solving problems from primary school to university, they will not wait for the judgment of others about the difficulties they face, they will find solutions fot them and they will become the ones who will not create problems but will solve them. Indeed, the improvement of an individual is in the direction of the skill which he shows on problem-solving. (Cüceloğlu, 2000: 425: Bingham, 2004: 11; Ünlü, 2005: 133; Demirel, 2003). Elementary school years are a crucial period for the development of this capability. To improve the problem solving skills of the child, it is necessary to make him face different problems, and concentrate in the situation. It is also needed to make him eliminate the false solutions of alternative solutions through narrowing the boundaries of the problem and to give him opportunities to tell the alternatives he developed to solve the problem without criticizing him. (Totan, 2011). If children are given the opportunity to solve their problems, they will get the opportunity to develop their cognitive abilities such as observation, comparision, organizing information, evaluation along with developing their democratic attitudes and behavior. They benefit from each other's ideas, gain predisposition to unusual ideas, even they get the opportunity to learn even from their mistakes. (Goffin & Tull, 1993; Zembat ve Unutkan, 2003:226). Thus, students' problem solving skills perceptions should be developed in order to be creative, have self confidence and critical thinking and become individuals who find realistic solutions to problems they face. This has great significance in terms of their personal and social development.

When literature is gone through, it is noticed that although there are many studies in this field for various age groups, (Çilingir, 2006; Davenport, Hegland & Melby, 2008; Korkut, 2002; Dinçer, Anlıak, Şahin & Karaman, 2009; Katkat, 2001; Leerkes, Blankson, Q'Brien, Calkins & Marcovitch, 2011; Mills, Danovitch, Grant & Elashi, 2012; Kanbay et all., 2013; Tavlı, 2007; Yıldız & Ekşisu, 2011) there aren't enough studies for this age group in Turkey. In this context this study is believed to fill the gap. In this study it is aimed to examine whether the facts such as gender, school type (state and private) Parents' education level affect 4th grade students' problem solving skills.

2. Methods

2.1. Population and Sample

This research is based on survey method. It was made on 587 4th grade students in state and private primary schools in 7 different districts on the European side of Istanbul province in 2015-2016 academic year. Problem solving skill level of the students in the sample of the study is determined by applying "Problem Solving Inventory for Primary School Children". Also "Personal Information Form" developed by the researcher is used to collect demographic information of the students

2.2. Data Collection Tools

Problem Solving Inventory for Children in Primary Level (PSICPL)

"Problem Solving Inventory for Children in Elementary Level" which validity and reliability are confirmed by Serin and his colleagues (2010) consists of 3 factors and 24 items. These are: "Problem Solving Skills Confidence" (12 items), "Self-Control" (7 items) and "Avoidance" (5 items). The quintet likert type which is graded as 1-5 measures individual's self-perception about problem-solving skills. Score interval is 24-120. While calculating the scores, self-control (18, 19, 20, 21, 28, 49, 58) and avoidance (41, 43, 59, 62, 64) factor items have been scored reversely. Cronbach alpha reliability coefficient of the scale is 0.80. The fact that total scores taken from the scale are high shows that people have percieved themselves sufficient in problem solving (Serin ve ark., 2010)

2.3. Data Analysis

The data obtained in the study were analyzed by using SPSS 22.0 software. Number, percentage, mean, standard deviation are used as descriptive statistical methods in the evaluation of the data. T-test was used to compare

continuous quantitative data between two independent groups, a one-way ANOVA test was used to compare the continuous quantitative data among more than two independent groups. Scheffe test was used as a complementary post-hoc analysis to determine the differences after Anova test.

3. Findings

Findings obtained from the analysis of data collected through the scale of the students who participated in the research appear in this part. Explanations and comments are made based on the findings.

Table 1. Students' Descriptive Charecteristics

	Groups	Frequency(n)	Percentage (%)
School Type	State	320	54,5
	Private	267	45,5
	Total	587	100,0
Gender	Male	277	47,2
	Female	310	52,8
	Total	587	100,0
Mother Education Level	İllitrate	37	6,3
	Elementary	187	31,9
	Lyse	142	24,2
	Under Graduate	190	32,4
	Graduate	31	5,3
	Total	587	100,0
Father Education Level	İllitrate	27	4,6
	Elementary	153	26,1
	Lyse	108	18,4
	Under Graduate	251	42,8
	Graduate	48	8,2

In terms of school types, students are dispersed as 320 students (54,5%) state 267 (45,5%) private.

In terms of gender students are dispersed as 277 students (%47,2) are female, 310 students (%52,8) are male

In terms of Students' mothers' level of education, they are distributed as 37 (6,3%) illiterate, 187 (31,9%), primary education, 142 (24,2%) secondary education, 190 (32,4%) undergraduate, 31 (5,3%) graduate. In terms of Students' fathers' level of education, they are distributed as (%4,6) illiterate, 153 (%26,1) primary education, 108 (%18,4) secondary education, 251 (%42,8) undergraduate, 48 (%8,2) graduate.

Table 2. Students' Scale Total Avarages in terms of PSICPL

	N	Ort	Ss	Min.	Max.
Problem Solving Skills Confidence	587	43,632	7,998	15,000	55,000
Self control	587	23,404	6,055	7,000	35,000
Avoidance	587	18,874	4,603	5,000	25,000
PSICPL Scale Total	587	85,910	13,410	46,000	115,000

"The problem solving confidence level" of students who participated in the study is (43,632 ± 7,998); their "self control" level is (23,404 ± 6,055); their "Avoidance" level (18,874 ± 4,603); and "PSICPL scale total" level (85,910 ± 13,410); respectively.

Table 3. The averages of students' PSICPL points and subdimension points in terms of Gender

	Grup	N	Ort	Ss	T	P
Problem Solving Skills Confidence	Female	277	43,599	8,191	-0,094	0,925
	Male	310	43,661	7,835		
Self control	Female	277	23,264	5,872	-0,530	0,596
	Male	310	23,529	6,221		
Avoidance	Female	277	19,000	4,465	0,627	0,531
	Male	310	18,761	4,727		
PSICPL Scale Total	Female	277	85,863	13,595	-0,080	0,936
	Male	310	85,952	13,264		

The result of t-test that was done in order to determine whether the participated students problem-solving skills confidence, self-control, avoidance, subdimension points and PSICPL Scale Total avarages was significant according to gender variable shows that the group avarages was not statitically significant (p>0,05).

Table 4. The avarages of students' PSICPL total score and subdimension score in terms of Mother Education Level

	Grup	N	Aver.	Ss	F	P	Difference
Problem Solving Skills Confidence	İllitrate	37	40,919	7,690	3,726	0,005	2 > 1 2 > 3 2 > 4
	Elementary	187	45,300	7,785			
	Lycee	142	43,247	7,597			
	Undergraduate	190	43,016	8,548			
	Graduate	31	42,355	6,327			
Self Control	İllitrate	37	22,838	5,993	3,451	0,008	4 > 2 4 > 3 4 > 5
	Elementary	187	22,904	6,055			
	Lycee	142	22,775	6,148			
	Undergraduate	190	24,705	6,002			
	Graduate	31	22,000	4,967			
Avoidance	İllitrate	37	17,081	4,554	5,253	0,000	2 > 1 4 > 1 4 > 2 4 > 3 2 > 5 4 > 5
	Elementary	187	18,781	4,804			
	Lcese	142	18,528	4,787			
	Undergraduate	190	19,874	3,991			
	Graduate	31	17,032	4,834			
PSICPL Scale Total	İllitrate	37	80,838	12,151	3,687	0,006	2 > 1 4 > 1 4 > 3 2 > 5 4 > 5
	Elementary	187	86,984	12,746			
	Lycee	142	84,549	13,369			
	Undergraduate	190	87,595	14,350			
	Graduate	31	81,387	10,197			

The difference among the group avarages was statistically found significant as the result of one- way analysis of variance (Anova) that was done to determine whether participated students' Problem Solving Skills Confidence score avarages show a meaningful difference in comparison with mother education level (F=3,726; p=0,005<0.05). A complementary post-hoc analysis was done in order to find out the source of differences.

Problem Solving Skills Confidence scores of the ones whose mothers have the elementary level education 45,300 ± 7,785) was found higher than Problem Solving Skills Confidence scores of the ones whose mothers are illiterate (40,919 ± 7,690). Problem Solving Skills Confidence points of the ones whose mothers have the elementary level education (45,300 ± 7,785) was found higher than Problem Solving Skills Confidence scores of the ones whose mothers have secondery school education level (43,247 ± 7,597). Problem Solving Skills Confidence scores of the ones whose mothers have the elementary level education (45,300 ± 7,785) was found higher than Problem Solving Skills Confidence scores of the ones whose mothers have undergraduate degree. (43,016 ± 8,548).

The difference among the group avarages was found statistically significant as the result of one- way analysis of variance (Anova) that was done to determine whether participated students' Self control subdimension score avarages show a meaningful difference in comparison with mother education level (F=3,451; p=0,008<0.05). A complementary post-hoc analysis was done in order to find out the source of differences. Self control subdimension scores of the ones whose mothers have undergraduate degree (24,705 ± 6,002), was found higher than self control subdimension scores of the ones whose mothers have elementary level education (22,904 ± 6,055). Self control subdimension scores of the ones whose mothers have undergraduate degree (24,705 ± 6,002) was found higher than Self control subdimension scores of the ones whose mothers have secondary school education (22,775 ± 6,148). Self control subdimension scores of the ones whose mothers have undergraduate degree (24,705 ± 6,002) was higher than Self control subdimension scores of the ones whose mothers have graduate degree (22,000 ± 4,967)

The difference among the group avarages was found statistically significant as the result of one- way analysis of variance (Anova) that was done to determine whether participated students' Avoidance subdimension score avarages show a meaningful difference in comparison with mother education level (F=5,253; p=0,000<0,05). A complementary post-hoc analysis was done in order to find out the source of differences. Avoidance subdimension scores of the ones whose mothers have elementary level education (18,781 ± 4,804) was higher than Avoidance subdimension scores of the ones whose mothers are illiterate (17,081 ± 4,554).

Avoidance subdimension scores of the ones whose mothers have undergraduate degree. (19,874 ± 3,991) was found higher than Avoidance subdimension scores of the ones whose mothers are illiterate. (17,081 ± 4,554). Avoidance subdimension scores of the ones whose mothers have undergraduate degree (19,874 ± 3,991) was found higher than Avoidance subdimension scores of the ones whose mothers have elementary level education (18,781 ± 4,804). Avoidance subdimension scores of the ones whose mothers have undergraduate degree (19,874 ± 3,991) was higher than Avoidance subdimension scores of the ones whose mothers have Lycee education (18,528 ± 4,787). Avoidance subdimension scores of the ones whose mothers have elementary level education (18,781 ± 4,804) was found higher than Avoidance subdimension scores of the ones whose mothers have graduate degree (17,032 ± 4,834). Avoidance subdimension scores of the ones whose mothers have undergraduate degree (19,874 ± 3,991) was higher than Avoidance subdimension scores of the ones whose mothers have graduate degree (17,032 ± 4,834).

One- way analysis of variance (Anova) that was done to determine whether participated students' PSICPL total points avarages show a meaningful difference in comparison with mother education level (F=3,687; p=0,006<0,05). A complementary post-hoc analysis was done in order to find out the source of differences. PSICPL total scores of the ones whose mothers have elementary level education (86,984 ± 12,746) was found higher than PSICPL total scores of the ones whose mothers are illiterate (80,838 ± 12,151). PSICPL total scores of the ones whose mothers have undergraduate degree (87,595 ± 14,350) was found higher than PSICPL total scores of the ones whose mothers are illiterate (80,838 ± 12,151). PSICPL total scores of the ones whose mothers have undergraduate degree (87,595 ± 14,350) was found greater than PSICPL total scores of the ones whose mothers have Lycee level education. (84,549 ± 13,369) PSICPL total scores of the ones whose mothers have elementary level of education (86,984 ± 12,746) was found greater than PSICPL total scores of the ones whose mothers have graduate degree (81,387 ± 10,197). PSICPL total scores of the ones whose mothers have undergraduate degree (87,595 ± 14,350), was found greater than PSICPL total scores of the ones whose mothers have graduate degree (81,387 ± 10,197).

Tabble 5. The avarages of students' PSICPL total score and subdimension scores in terms of Father Education Level

	Group	N	Aver.	Ss	F	p
Problem Solving Skills Confidence	İllitrate	27	42,889	7,678	1,773	0,133
	Elementary	153	44,569	7,860		
	Lycee	108	44,611	7,692		
	Undergraduate	251	42,988	8,395		
	Graduate	48	42,229	6,783		
Self control	İllitrate	27	22,482	6,216	1,275	0,279
	Elementary	153	22,693	5,912		
	Lycee	108	23,583	6,443		
	Undergraduate	251	23,944	6,010		
	Graduate	48	22,958	5,664		
Avoidance	İllitrate	27	16,815	5,277	2,147	0,074
	Elementary	153	18,621	4,778		
	Lycee	108	19,176	4,730		
	Undergraduate	251	19,227	4,351		
	Graduate	48	18,313	4,411		
PSICPL Scale Total	İllitrate	27	82,185	12,869	1,253	0,288
	Elementary	153	85,882	12,805		
	Lycee	108	87,370	13,320		
	Undergraduate	251	86,159	14,004		
	Graduate	48	83,500	12,405		

The difference among the group avarages was found statistically insignificant as the result of one- way analysis of variance (Anova) that was done to determine whether participated students' problem solving skills confidence, self control, and avoidance and PSICPL total scores show a meaningful difference in comparison with father education level (p>0,05).

Table 6. The Avarages of Students' PSICPL Total score and Subdimension scores in Terms of School Type Variable

	Group	N	Average	Ss	t	P
Problem Solving Skills Confidence	State	320	45,128	7,508	5,065	0,000
	Private	267	41,839	8,210		
Self Control	State	320	23,209	6,065	-0,851	0,395
	Private	267	23,637	6,047		
Avoidance	State	320	18,656	4,925	-1,255	0,203
	Private	267	19,135	4,179		
PSICPL Scale Total	State	320	86,994	13,067	2,151	0,032
	Private	267	84,611	13,721		

The result of t-test that is done to determine whether Students' problem solving skills confidence has a meaningful defference compared with school type showed a statically significant difference between the group averages (t=5,065; p=0,000<0,05). State school students' problem solving skills confidence scores (x=45,128 was found higher than private school students' problem solving skills confidence scores (x=41,839).

The result of t-test that is done to determine whether Students' self control and avoidance has a meaningful difference compared with school type showed it statically insignificant difference between the group averages (p>0,05)

The result of t-test that is done to determine whether students' PSICPL total scores has a meaningful difference compared with school type showed it statiscally significant difference between the group averages (t=2,151; p=0,032<0,05). PSICPL total scores of state school's (x=86,994 was found higher than PSICPL total scores of private school students (x=84,611)

4. Discussion and Recommendations

In this study, the relationship between 4th grade students'perceived problem solving levels, and gender, parents's education level and school type was investigated.

When looking at the overall results of the research, it was found that problem solving inventory for children, problem-solving skills confidence, self-control and problem solving subscale scores and problem solving total score students show no significant differences compared with student's gender variable. This finding shows parallelism with studies and findings of Saraçaloğlu, Serin ve Bozkurt (2001), Kasap (1997), Çam (1997), Tümkaya ve İflazoğlu (1999), Özkütük ve ark. (2003), Çilingir (2006) , Gültekin (2006), Olgun (2010), Yıldırım ve Yalçın (2010), Akkaya, (2012), Bal (2013), Akbaş (2005), Dereli (2008), Yıldırım et al(2011), Kanbay (2013), Erdem ve Genç(2014). Although these findings are in harmony with some studies in the literature, there are some studies in opposite direction (Kürtüncü et all., 2013; Danışık, 2005; Ferah, 2000; Karabulut & Ulucan, 2011; Serin ve Derin, 2008). Since the findings in this study show no significant difference between genders; it is regarded that boys and girls have a similar ability level to solve problems. Since Problem solving skill is learnable cognitive, mental, behavioral life skill (Bingham, 2004), it is thought that it will not change according to the gender and it will develop through education. Although this finding is in harmony with some studies in the literature, there are some studies in opposite direction (Kürtüncü et all., 2013; Danışık, 2005; Ferah, 2000; Karabulut & Ulucan, 2011; Serin ve Derin, 2008).

It was found that problem solving inventory for children problem-solving skills confidence, self-control and problem solving subscale scores and problem solving total score students show significant difference comparing with mother's education level. This finding shows parallelism with studies and findings of Saygılı (2000), Eroğlu (2001), Ünüvar (2003), Akbaş (2005), Hamarta (2007), Arslan (2009). Some studies and findings in literature support this finding. (Yıldırım et al.; 2011, Korkut,2002; Serin ve Derin, 2008; Tümkaya ve İflazoğlu;1999). In this study, it is confirmed that problem solving skill of the ones whose mothers have undergraduate degree is higher. Mother's interaction with the child is a very important factor in his mental, emotional, social and personality development. The affect of mother's attitude is greater since she spends more time wih her child and she is closer to children compared with father (Kulaksızoğlu, 1999: 117-119). It is thought that university graduate mothers have more democratic attitude towards their children (Tailor 2003), they have a more conscious approach for their education, when children experience any difficulties in problem solving, these mothers don't solve it for them but they guide them, when Children find effective solutions, they reinforce their behavior. However, that ones whose mothers have graduate level education have poor problem-solving skills is because of the fact that they don't spend enough time with their children due to the increase in the mother's responsibility, the increase in the mother's problem-solving skills makes children reduce their self-efficacy and self-esteem (Sarica, 2013), or mothers prefer solving the problems rather than encouraging children to overcome the problems. In the meantime, the research results show that in the problem-solving skills

confidence subscales, the ones whose mothers have primary education have more problem-solving skills confidence, children whose mothers have graduate degree have less confidence in problem solving than the ones whose mothers have undergraduate degree or lycee diploma. In problem-solving avoidance subscales, the ones whose mothers have graduate degree show higher avoidance behaviour while solving problem. The ones whose mothers haveelementary level education, lycee diploma or undergraduate degree^show lower avoidance behavior while solving the problem. It makes the one think that children whose mothers have university education exhibit avoidance behavior because they are worried about not satisfying their parents high expectations on problem solving.

It was found that problem solving inventory for children, problem-solving skills confidence, self-control and avoidance subscale scores and problem solving total score students show insignificant difference comparing with father's education level. This finding shows parallelism with studies and findings of Deniz and et.al., (2002), Korkut, (2002), Serin & Derin (2008) Derin (2006), Hamarta (2007). However, it does't overlap the studies and findings of Saygılı (2000), Çağlayan et al. (2008), Yıldırım et al (2011). This insignificance in the study is thought that children spend most of their time with their motlers, not their fathers, therefore, they cannot model their fathers. Contrary to this study, in the studies where father's education level is effective it can be regarded that fathers spend more and well qualified time with their children and they become a good model for them.

It was found that problem solving inventory for children, problem solving total score show significant difference according to school type variable. It is found out that problem-solving skills confidence subscale scores show a meaningful difference and this difference is in favor of the ones who attend state schools. It was also found that problem-solving skills, self-control and avoidance subscale scores show insignificant difference. According to this finding the fact that students attending state schools are more successful at problem solving than the ones attending private schools can be evaluated in different ways. These are; parents of the students attending private school are in a protective manner, not letting their children face problems, in the cases they face problems parents solve the problem instead. Although the school has good physical facilties, teachers prefer doing it instead of guiding the student while solving the problem. Besides, it is thought that the approaches about problem solving do not have enough place in curriculums or students can not use the knowledge that they have learnt at school effectively or cannot internalize problem solving skills.

Line with these results, we should enable children to face the problems in order to cope with the problems of our century and should make children's creative acquire thinking skills, and support multidimensional thinking. Subjects and activities in primary school curricula and at all levels of education that would make students gain problem solving skills might be given weight. Students can be brought forth awareness to the fact that there can be alternative solutions of a problem they face through teaching problem solving steps in different methods. Students with low level of problem-solving skills are identified by school guidance department or experts and effective problem solving skills group guidance activities can be applied to those students. Also, problem-solving skills training programs that would prevent ineffective problem solving skills for pre school and primary school teachers, parents and peer groups can be prepared and implemented in order to raise awareness on this issue. Awareness of parents whose children have difficulty in problem-solving skills can be raised through giving them supportive trainings about creating a democratic environment, effective communication with children and improvment of problem solving skills. It can be beneficial for the development of children to organize in-service training programs for the teachers in order to develop their creative and effective problem solving abilities. That training might be repeated bu using different samples. Furthermore, a research can be designed by using different variables that are not mentioned in this study but that are thought to affect the students' problem-solving skills

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