



Effectiveness of the leadership skills development program for gifted children

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Abstract

When the relevant literature is examined, it is possible to find many studies on leadership skills along with leadership characteristics, but there are limited studies on leadership in children (Mullarkey, Recchia, Lee, Shin, & Lee, 2005; Duran & Zembat, 2020). The training of intelligent and gifted leaders is essential for national and international progress. Therefore, education programs for leadership skills should be created for gifted children from an early age (Parker & Begnaud, 2004). There is a need for training programs to develop leadership skills to be organized for students with leadership potential. With this research, it is aimed to determine the effectiveness of the leadership skills development program prepared for special talents. In addition, it is aimed that the educational program, the effectiveness of which was determined within the scope of the research, is realized for the gifted students to realize their leadership potential and to discover the ways to realize their existing potentials. In this study, a mixed research method, including both qualitative and quantitative approaches, was used to obtain more reliable results. The study group consisted of 54 students (26 in the experimental group, 28 in the control group) in the 9-11 years of age group, who were identified as gifted students and continued the same Science and Art Center support education program in Istanbul. In Science and Art Centers, there is an education and training process that differs from the curriculum and determined goals in general education. In these centers, there are 5 programs: Adaptation Program, Support training program, Individual Talent Recognition Program, Special Talent Developing Program and Project Production and Preparation. In the research, the “Problem solving inventory for primary school children” developed by Serin, Bulut Serin and Saygılı (2010) and the “Leader student scale” developed by Tüysüz (2007) were used. The student leader scale consists of basic leadership, personal ability, problem solving, teamwork and social service sub-dimensions. In line with the findings obtained from the research, it has been determined that the Leadership Education Program has positive contributions to the development of students' problem-solving skills and leadership skills.

Keywords: Leadership skills, gifted children, Leadership Education Program,

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1.Introduction

In the literature review there are many different definitions on the concept of leadership. Çelik (2016) defines leadership as an individual who takes action in a predictable way to reach people's goals and plans for their future whereas Şişman (2011) expresses leadership as being able to influence people and directing them to action in line with the determined goals and objectives. Martin (2007) defined leadership as a skill and expressed the characteristics of this skill as setting a vision for change, motivating the people around him/her, and providing opportunities for people to develop and learn.

Along with the different definitions in the concept of leadership, it has been determined that there are different ideas about whether leadership characteristics come from the birth of the individual or can be developed later. As a result of researches conducted, it has been determined that leadership is under the influence of environmental factors from early childhood along with genetic factors (Murphy & Reichard, 2011; Riggio, 2019; Wagstaff, 2017). Sacks (2009) argues that the leadership potential in childhood and adolescence is the basis of individual characteristics for emerging leadership in the later stages. Similarly Andersen (2011) argues that children's environmental characteristics and early experiences are the building blocks of their future behaviors.

When the relevant literature is examined, it is possible to come across many studies on leadership skills along with leadership characteristics. However, there is limited research on leadership in children. (Mullarkey et al., 2005; Duran & Zembat, 2020). While Murphy and Johnson (2011) state the importance that children should experience and learn leadership skills from an early age, Barthold (2014) argues that children exhibit leadership skills from an early age, so they should be supported from early ages.

When leadership researches on children are examined, it is obvious that the emphasis is placed on the individual characteristics of children. These features have been identified as mental and social skills (Bisland, 2004), verbal language skills (Duran & Zembat, 2019), problem solving (Sisk & Rosselli, 1996), and adapting to new situations (Hensel, 1991). However, in the studies conducted by Lee, Recchia, and Shin (2005), the characteristics of children who are leaders is defined as creativity, imagination, sensitivity to the feelings of others, self-confidence, tendency to group work and dramatic skills (Duran & Zembat, 2019).

Tüysüz (2007) states that the leadership characteristics of primary school students are; capable of solving problems, thinking critically, struggling with uncertainties, expressing themselves verbally and motivating other individuals around them. It has been determined that the classifications for leadership skills in the related literature (Connelly et al., 2000, Mumford, et al., 2007) are grouped under four basic categories.

These are cognitive skills, interpersonal skills, business management skills, and strategic skills for problem solving.

The above-mentioned characteristics of children leaders show parallelism with the characteristics of gifted students. Effective leaders and gifted children are flexible, enterprising, sensitive to social problems, can think creatively and critically, as well as having high verbal skills and a rich imagination (Milligan, 2004; Parker & Begnaud, 2004). When the relevant literature is examined, it has been determined that intelligence contributes to leadership (Davis & Rimm, 1994; Renzulli & Reis, 1985; Roach et al., 1999). Bass (1990) argues that leaders are more intelligent than those who follow them; while Milligan (2004) states that leadership training is an important part of the programs for the gifted.

In Acar's (2007) study comparing the leadership characteristics of students using the Roets Leadership Evaluation Scale, it was found that leadership characteristics were significantly higher in favor of gifted students. While in the Marland Report (1972) the concept of gifted is defined to include the leadership feature, it is stated in the Special Education Regulation that gifted students show leadership characteristics. Tannenbaum (1983) argues that students with a higher level of general intelligence than their peers have a greater chance of having leadership skills. Gardner (2013) states that students who show high performance in terms of leadership are individuals with high interpersonal intelligence.

The training of intelligent and gifted leaders is essential for national and international progress. Therefore, education programs for leadership skills should be created for gifted children from an early age (Parker & Begnaud, 2004). Although there is a need for more effective leaders in every field today, the development of leadership skills of gifted students has been neglected (Arslan & Uğurlu, 2017; Davashgil, 2004; Parker & Begnaud, 2004; Plucker and Callahan, 2008). According to Kim, Cho, and Jin (2005), as the educational experience of gifted students increases, their creative problem-solving skills develop, but their leadership skills do not. However, there is very little research on leadership and giftedness. In addition, it is seen that education programs for students with leadership potential in schools are insufficient.

Fulmer and Goldsmith (2000) argue that the development of leadership skills in students is a necessity, while Karnes and Stephens (2000) argue that education should be organized to develop students' leadership skills at schools. Imada et al. (2002) emphasize that leadership training and assessment is an ongoing process and that leadership can be improved. Hersey, Blanchard, and Johnson (2001) state that students who have basic knowledge about leadership try more about leadership than those who do not have this knowledge where this situation affects their lives in a positive way.

There is a need for training programs to develop leadership skills to be organized for students with leadership potential. Chobharkar (2011) stated that communication, vision-setting, team-building, decision-making and planning skills should be gained in the trainings to be organized for students, while Al-Jammal (2015) stated that leader students should have problem-solving, communication, relationship-building and team-building skills. According to Glasser (1999) starting from pre-school children responsibilities should be given within the scope of leadership skills. Posner (2014) states that students who are given more leadership opportunities during the education process improve their leadership skills. Similarly Akdemir (2007) states that students who take part in team games display more leadership skills than students who do not take part in a team.

1.1. Purpose of the research

Gifted students who are born with innate leadership potential should be faced with educational programs that will enable them to realize and develop this potential. When the literature on the education of gifted students is examined, it is stated that the education of these students should include practices aimed at developing critical thinking, creative thinking, research, problem solving and decision-making skills (VanTassel-Baska & Stambaugh, 2006; Sak, 2014). In addition, the necessity of creating educational environments in which students take risks and show courage, where teamwork and cooperation skills are included, was emphasized in the programs organized (Cooper, et al.,2004; Meador, 2003; Sak, 2014; Tomlinson 2014).

With this research, it is aimed to determine the effectiveness of the leadership skills development program prepared for gifted students. In addition, it is aimed to realize the leadership potential of the gifted students of the training program, the effectiveness of which has been determined within the scope of the research, and to discover the ways to realize their existing potentials. Another aim is to guide researchers and practitioners who aim to develop leadership skills with gifted students. For this purpose, answers to the following problems are sought.

1.2. Research Questions

1. Does the leadership training program have an effect on the problem solving skills of gifted students?
2. Does the leadership training program have an effect on the development of the basic leadership skills of gifted students?
3. Does the leadership training program have an effect on the development of the personal abilities of gifted students?

4. Does the leadership training program have an effect on the teamwork skills of gifted students?
5. Does the leadership training program have an effect on the development of gifted students' community service skills?

2. Method

2.1. Research Model

In this study, mixed research method, which includes qualitative and quantitative data, was used. Sequential explanatory design was used in the design of the research. In this patterning, quantitative studies are supported by qualitative data (Creswell et al., 2003). Thus, qualitative study data are complementary in interpreting quantitative data. In the study, an experimental design with pretest and posttest control group was used in order to examine the effect of the Leadership Education Program on the problem-solving skills, basic leadership skills, development of personal abilities, teamwork skills and community service skills of gifted students.

2.2. Study Group

The study group of this research consists of 54 students (26 experimental, 28 control group) from the 9-11 age group who were diagnosed as gifted and continue the same Science and Art Center (BİLSEM) support education program. The study group of the research was selected by the simple random sampling method, one of the random sampling methods. This method is the method in which each selected item has the same statistical chance and is chosen completely randomly (Büyüköztürk, et al., 2018).

There are 14 female and 12 male students in the experimental group of the research while there are 15 female and 13 male students in the control group. 16 students in the experimental group attend public school whereas 10 students attend private school. However, 15 of the students in the control group attend public school, while 13 attend private school. All of the students were diagnosed as gifted in the general mental area.

The problem-solving inventory for primary school children and the Leader student scale, which are the data collection tools of the research, were applied to the students in the experimental and control groups as a pre-test before the application, and it was determined that there was no significant difference between the scores of both groups. The data on the pre-test scores of the students are presented in the findings section of the research.

2.3. Setting

The application study of the research was carried out in a Science and Art Center in Istanbul. Science and Art Centers were established by the Ministry of National Education in order to receive education in the fields of science and art for students who are identified as gifted. These centers, which are independent educational institutions, carry out studies to ensure that gifted students at the age of primary, secondary and high school education receive education in accordance with their talents (MEB, 2016). Basically, three skill areas which are general talent, art, and music are used in the admission of students to these institutions. Students who are attending BİLSEMs carry out their education at BİLSEMs in accordance to their formal education schools (Keskin et al., 2013). There are 5 programs in Science and Art Centers: Integration Program, Support Education Program, Individual Talent Recognition Program, Special Talent Developing Program and Project Production and Preparation.

2.4. Data Collection Tools

2.4.1. Problem solving inventory for primary school children

The "Problem Solving Inventory for Primary Education Level Children" developed by Serin, Bulut Serin and Saygılı (2010) was used to collect data on problem solving skills, one of the dependent variables of the study. There are 24 items in the inventory consisting of three factors. The three factors in the inventory were defined as Confidence in Problem Solving Skills, Self-Control and Avoidance, respectively. The Cronbach alpha reliability coefficient of the inventory was calculated as 0.80. Since the items in the first factor express self-confidence, not giving up, and determination when faced with problems, it was named "Confidence in Problem Solving Skills". Since the items in the second factor included statements about self-management in the face of problems, more autonomous behaviors, developing thoughts, and the dominance of internal-controlled features, this factor was named "Self-Control". Since the expressions in the third and last factor contain meanings related to procrastination, ignoring, inability to confront, and the tendency to get away from the real problem, instead of solving the problem when faced with a problem, this factor is called "Avoiding".

2.4.2. Leading Student Scale

In this study, the "Leader Student Scale" developed by Tüysüz (2007) was used to measure students' leadership skills. The scale consists of 32 items and four subscales. These scales were named as basic leadership (7 items), personal ability (8 items), teamwork (11 items) and community service (6 items). It enables students to answer the questions in the scale on a scale ranging from "strongly disagree" to "strongly agree". Total reliability coefficient (Cronbach alpha) value of the scale was found as $\alpha=0.93$.

However, the reliability coefficient (Cronbach alpha) value of the basic leadership subscale $\alpha=0.83$, the reliability coefficient (Cronbach alpha) value of the teamwork subscale $\alpha=0.93$, the reliability coefficient (Cronbach alpha) value of the personal ability subscale $\alpha=0.73$, the social service subscale The reliability coefficient (Cronbach alpha) value of the scale was determined as $\alpha=0.83$.

2.4.3. Semi-structured Interview Form

In order to evaluate the effects of the leadership program applied in this study with qualitative data together with quantitative data, a semi-structured interview form was used which was prepared by the researcher. The purpose of the application of the interview technique in the research is to obtain more in-depth information about the quantitative data obtained by the students from the leadership training and to determine the effect of the activities in the leadership training program on the students. The studies carried out within the scope of the validity and reliability studies of the semi-structured interview form used in the collection of data are presented below.

In order to determine the content validity, the opinions of three academicians in the field of educational sciences were consulted and the draft form was finalized by making the necessary corrections in line with the suggestions. Before the application, in order to control the questions in the draft form in terms of content and expression, focus group work was conducted with five students who met the sampling criterion used in the research, and arrangements and additions were made to the questions. The students' views were noted down and descriptive and content analysis was carried out on all data. In addition, direct quotations are also included to reflect original views and thoughts (Yıldırım & Şimşek, 2018).

In order to determine the internal validity, the duration of expert review, participant confirmation and interviews with students were kept long. In addition, the consistency of the findings obtained from the collected data was checked to increase the credibility of the data. In order to increase the external validity (transferability), the research process and the procedures performed in this process are described in detail. In this context, the model of the research, the study group, the data collection tool, the data collection process, the analysis and interpretation of the data, and how the findings were organized were explained in detail. In order to increase its internal reliability (consistency), all of the findings were given directly without comment. In addition, researchers and a faculty member experienced in qualitative research made separate coding on the data obtained during the interview, and the consistency rate was calculated by comparing the coding. In order to increase its external reliability (confirmability), detailed explanations about the positions of the researchers, their previous experiences about the studied situation, the participants who were the data source in the research, the social environment in

which the research was conducted, the conceptual framework used in the analysis of the data obtained, and the analysis methods were included (Yıldırım & Şimşek, 2018)..

2.5. Data Analysis

In the research, in order to decide on the parametric/nonparametric tests to be used to understand whether the education in which the science lesson activities prepared in accordance with the components and steps of the Grid model are effective or not, the pretest and posttest scores of the experimental and control groups were calculated before the experimental procedure and whether the score distributions provided the assumptions of normality and homogeneity has been tested. For this purpose, the skewness and kurtosis values of the pretest, posttest and retention test total scores obtained for each group were examined in order to determine whether the assumption of normality was met. If these coefficients are between -2 and +2, it is accepted that the distribution of the scores is normal (Hair et al., 2010). In order to test the homogeneity assumption Levene test was used. As a result of the test, it was accepted that the variances provided the homogeneity assumption in cases where the significance scores were greater than 0.05, that is, there was no significant difference between the variances of the scores. Therefore, the independent groups t-Test was used to test the significance of the difference between the mean scores of the pretest-posttest score differences of the two groups.

2.6. Application

In this research, a Leadership Education Program was developed and implemented within the scope of the "Leadership Skills" theme in the Character Education module of the Science and Art Centers Support Education Program. The program was implemented for 13 weeks during the 2018-2019 academic year. The prepared program was arranged by taking the necessary opinions also examined by 2 Curriculum Development Specialists and 1 Assessment and Evaluation Specialist, 3 classroom teachers working at the Science and Art Center.

Within the scope of the leadership training program, the objectives determined for the students are presented in the section below:

1. To make them aware of basic leadership skills,
2. To reveal the sense of self-confidence and to enable them to realize the ways to develop their sense of confidence in the right way.
3. To learn how to be aware of their personal characteristics and how to develop these features.

4. To make them realize the importance of acting in cooperation by working as a 5. To support the development of the sense of social responsibility in order to serve the society from an early age. Considering the dimensions of the leader student developed by Tüysüz (2007) within the scope of the leadership training program, the activities and methods applied for each dimension are presented in Table 1 below.

Table 1. Dimensions and Activities of the Leadership Training Program

DIMENSIONS	BASIC LEADERSHIP	PERSONAL ABILITY	PROBLEM SOLVING	TEAMWORK	THE SOCIAL SERVICE
SUB-DIMENSION	Explain the meaning of leadership	Trust yourself	Being able to recognize the problem	Cooperation	Being able to see the needs of others
	Having a vision	Recognizing strengths and weaknesses	Seeing different solutions	Active listening	Environmental Sensitivity
	Understanding the importance of leadership	Don't be open to criticism	Ability to apply problem solving techniques	Communication skill	Taking responsibility
		Patience		Have a team mission	Having a sense of ethics
		Curiosity and motivation to learn	Decision-making practice	Time management	Being aware of community values
					Volunteering Awareness
					Concepts of democracy and rights
					ability to internalize
LESSON ACTIVITIES	On the Path of Leaders	Leadership Stations	I'm building my brand	All for one	Civil society organizations
	My Dream Leader	Election campaign	We're going on a trip	We won	Those who work for society
	Scientists	Characteristics of effective leaders	Problem Ring	Organize a fair	We Are Establishing an NGO

METHODS AND TECHNIQUES	Question answer	Role playing Speech Ring Station	Creative problem solving decision circle Fishbone Six thinking hats	Creative drama Educational game	Role playing Argument Question answer
	Argument				
	Metaphor				
	Biography Reading				

5 activities in the leadership and entrepreneurship module of the Science and Art Center Support Education Program were carried out with the control group of the research,. The activities in the control group were not arranged according to leadership dimensions. In addition, question-answer and discussion method was used in 5 activities.

3. Results

In order to determine the effect of the leadership education program on the problem-solving skills of the gifted students, the t-test was applied to determine the difference between the scores of the students in the experimental group from the problem solving inventory for primary school children, which was applied as a pre-test and post-test before the application. The data obtained from the test are shown in Table 2.

Table 2. T-Test Results of the Experimental Group Students in the Problem-Solving Inventory Designed for Primary School Children

Sub-dimension	Score	N	X	S	t	p
Confidence	Pre-test	26	42.58	14.81	-2.12	0.01
	Post-test	26	53.64	16.32		
Self-control	Pre-test	26	23.64	12.38	-1.76	0.02
	Post-test	26	33.22	13.54		
Avoidance	Pre-test	26	24.26	14.28	-1.96	0.01
	Post-test	26	15.67	12.21		
Total	Pre-test	26	88.46	11.42	-2.62	0.00
	Post-test	26	110.98	13.52		

When Table 2 is examined, the difference between the pretest-posttest mean scores of the students in the experimental group in the sub-dimensions of "Problem Solving Inventory for Primary School Level Children", "confidence in problem solving skills", "self-control" and "avoidance" and the total score was found to be statistically significant.

($p < .05$). After the application, it was determined that there was an increase in the mean scores of "confidence in problem solving skills" and "self-control". The average score of "avoidance", which is a negative situation in problem solving, decreased significantly after the application. If the problem solving total score is significantly increased.

In order to determine the effect of the leadership education program on the problem solving skills of the gifted students, the t-test was applied to determine the difference between the scores of the students in the control group from the problem solving inventory for primary school children, which was applied as a pre-test and post-test before the application. The data obtained from the test are shown in Table 3.

Table 3. T-Test Results of the Control Group Students in the Problem-Solving Inventory Designed for Primary School Children

Sub-dimension	Score	N	X	S	t	p
Confidence	Pre-test	28	44.64	17.49	-1.235	0.41
	Post-test	28	46.88	19.24		
Self-control	Pre-test	28	24.44	12.36	-1.267	0.38
	Post-test	28	25.48	12.14		
Avoidance	Pre-test	28	19.66	14.72	-1.203	0.36
	Post-test	28	20.04	12.62		
Total	Pre-test	28	88.63	15.63	-1.102	0.39
	Post-test	28	90.14	14.82		

When Table 3 is examined, it has been seen that the difference between the pretest-posttest mean scores of the students in the experimental group in the sub-dimensions of "Problem Solving Inventory for Primary Education Level Children", "confidence in problem solving skills", "self-control" and "avoidance" and the total score was not statistically significant. ($p > .05$). It was determined that there was no significant increase in the mean scores of "confidence in problem solving skills" and "self-control" after the application. There was no significant decrease in the mean score of "avoidance", which is a negative situation in problem solving, after the application. No increase was detected in the problem-solving total score.

In the study, along with quantitative data, students' views were also analyzed in order to determine the effect of the leadership training program on problem solving skills. Open-ended questions about the problem-solving dimension "Is problem-solving skills important as a leader, why?" and "How do you find solutions to the problems you encounter in your daily life at the end of this training?" and the analysis of the data obtained in relation to this question is presented in Table 4.

Table 4. Thematic Data on Problem Solving Dimension

Theme	Views of Students
The importance of problem solving skills	S3... Problem solving skills are important. If the problems are not resolved, turmoil can ensue. This is to our detriment, not to our advantage. S18... Problem solving is an important skill. A leader must overcome the obstacles that stand in the way of the community and produce solutions. S 9...It is important. The more projects you do about the problem, the more S 11... A good leader should be able to solve problems effectively
Using problem solving techniques	S22...First of all, I focus on the causes of the problem by using the fishbone technique. S6 ...I produce solutions using the creative problem solving matrix S13...we come together with group members and produce the right solutions. S10...I produce solutions to the problems in society by applying the steps of problem solving

When Table 4 is examined, it has been determined that the answers given to the semi-structured interview form are grouped under two main themes: "importance of problem solving skills" and "using problem solving techniques". With the leadership training program, practical activities for students were organized in order them to realize the importance of problem solving skills, and to comprehend problem solving steps also the problem solving techniques. When the answers of the students to the semi-structured interview form were analyzed, it was determined that the purpose of the program was achieved. The students participating in the research are said to have established a relationship between leadership and problem-solving skills, and it is seen that they have knowledge about problem-solving stages and problem-solving techniques.

In order to determine the effect of the leadership education program on the basic leadership skills of gifted students, the t test was applied to determine the difference between the scores of the students in the experimental group from the basic leadership skills subscale of the leader student scale, which was applied as a pre-test and post-test before the application.

The t-test data regarding the scores of the students in the experimental and control groups of the study from the basic leadership skills subscale of the leader student scale, which was applied as a pre-test before the application, are shown in Table 5 below.

Table 5. t-Test Results of the Basic Leadership Subscale by Groups

Group	N	X	Ss	t	p
Experimental	26	24.40	3.84	0.68	0.52
Control	28	25.30	4.21		

As seen in Table 5, the basic leadership arithmetic mean of the experimental group is ($x=24.40$) and the arithmetic mean of the control group is ($x=25.30$). There was no

significant difference between the experimental and control groups in terms of basic leadership scores ($t(47)=0.68, p>0.05$).

The t-test data regarding the scores of the students in the experimental and control groups of the study from the basic leadership skills subscale of the leader student scale, which was applied as a post-test after the application, are shown in Table 6 below.

Table 6. t-Test Results of the Basic Leadership Subscale by Groups

Group	N	X	Ss	t	p
Experimental	22	30.24	4.94	0.21	0.00
Control	20	26.48	4.68		

When Table 6 is examined, the average rank of the scores obtained from the basic leadership subscale of the experimental group is 30.24, while the average rank of the scores obtained from the basic leadership subscale of the students in the control group is 26.48. Based on the findings, a significant difference was found between the post-test scores of the experimental and control groups in favor of the experimental group. Based on this finding it can be said that the basic leadership skills of the group completing the leader training program are higher than the basic leadership skills of the group not included in the program.

In the research, together with the quantitative data, the views of the students were also analyzed in order to determine the effect of the leadership training program on the basic leadership skills. Open-ended questions about the basic leadership dimension “What does leadership mean to you?” and “Which leadership style did you adopt at the end of this training?” and the analysis of the data obtained in relation to this question is presented in Table 7.

Table 7. Thematic Data on Basic Leadership Skills

Theme	Sub Theme	Views of Students
The Meaning of Leadership	Pathfinder	S15....I think leadership should guide people. S20... Leader means leader. The leader is the head. It tells the community what to do. S25... He is a leader who guides a group.
	Reassuring	S12...The leader must give confidence while guiding. S23...As the class president, my friends trust me. I think the biggest reason they elected me as president is because I gave them confidence. S1... People who give confidence in the society should be chosen as

			leaders
		Hardworking	S18...Leaders are people who work for the society S22...One of the subjects I included in my definition of leadership is that they are hardworking. S9...Leaders must work with determination and solve problems
Leadership Style Adopted by the Person	Democratic		S16...The class president should act fairly and democratically. S6...I want to be a democratic leader. S17... I think leadership should be democratic. Thus, they govern the society fairly.

When Table 7 is examined, it has been determined that the answers given to the semi-structured interview form are grouped under two main themes: "meaning of leadership" and "leadership style I adopt". With the leadership training program, practical activities were organized in order for students to realize the concept of leadership and its characteristics, to associate leadership styles with their own personal characteristics, and to determine leadership styles at an early age. When the answers of the students to the semi-structured interview form were analyzed, it was determined that the purpose of the program was achieved.

In order to determine the effect of the leadership education program on the development of the personal abilities of gifted and talented students, the t-test was applied to determine the difference between the scores of the students in the experimental and control groups from the personal talent subscale of the leader student scale, which was applied as a pre-test and post-test before the application.

The t-test data regarding the scores of the students in the experimental and control groups of the study from the personal ability subscale of the leader student scale, which was administered as a pre-test before the application, are shown in Table 8 below.

Table 8. t-Test Results of Personal Ability Subscale by Groups

Group	N	X	Ss	t	p
Experimental	26	32.84	3.84	0.62	0.54
Control	28	31.56	3.82		

As it is clear in Table 8, the arithmetic mean of personal ability of the experimental group is ($x=32.84$) and the arithmetic mean of the control group is ($x=31.56$). There was no significant difference between the experimental and control groups in terms of basic leadership scores ($t(47)=0.62$, $p>0.05$).

The t-test data regarding the scores of the students in the experimental and control groups of the study from the personal ability subscale of the leader student scale, which was applied as a post-test after the application, are shown in Table 9 below.

Table 9. t-Test Results of Personal Ability Subscale by Groups

Group	N	X	Ss	t	p
Experimental	22	38.24	1.54	5.08	0.00
Control	20	32.66	3.68		

When Table 9 is examined, the average rank of the scores obtained from the personal ability subscale of the experimental group is 38.24, while the mean rank of the scores obtained from the basic leadership subscale of the students in the control group is 32.66. Based on the findings, a significant difference was found between the post-test scores of the experimental and control groups in favor of the experimental group. Based on this finding; It can be said that the personal ability scores of the group completing the leader training program are higher than the personal ability scores of the group not included in the program.

In the research, together with the quantitative data, the views of the students were also analyzed in order to determine the effect of the leadership training program on the development of their personal abilities. Open-ended questions about the personal talent dimension “Which leadership abilities did you realize in this training?” and “Which leadership skills do you intend to develop at the end of this training?” and the analysis of the data obtained in relation to this question is presented in Table 10.

Table 10. Thematic Data on Personal Talent Dimension

Theme	Sub Theme	Views of Students
My leadership skills	Concordant	S2...My friends say that being a concordant person is one of my most important leadership qualities. S21...I was chosen as the class president because I am a compatible person.
	Imagination	S19...I dream as a leader and I work to make my dreams come true S14...I dream of what I can do for my family, friends and society
	Responsibility	S24...At the end of this training, I understood the importance of responsibility. S5...I am responsible

Skills I need to develop	Curiosity to learn	S5...I am curious and I like to teach what I have learned to others. S9... I always keep my interest in learning alive. I can't succeed otherwise
	To be patient	S23...I get angry very quickly. In this training, I learned that I need to be more patient. S1... I believe that if I am patient, I will be more successful.
	Controlling Emotions	S17...I am very emotional. I even get emotional at the injustice done to my friends. I have to control my emotions S12... Being emotional is seen as a weakness. I want to appear stronger by controlling my emotions.

When Table 10 is examined, it has been determined that the answers given to the semi-structured interview form are grouped under two main themes: "my leadership skills" and "skills I need to develop". With the leadership training program, practical activities were organized in order for students to realize their leadership skills and the skills they need to develop. When the answers of the students to the semi-structured interview form were analyzed, it was determined that the purpose of the program was achieved.

In order to determine the effect of the leadership education program on the teamwork scores of the gifted students, the t-test was applied to determine the difference between the scores of the students in the experimental group from the teamwork subscale of the leader student scale, which was applied as a pre-test and post-test before the application. The t-test data regarding the scores of the students in the experimental and control groups of the study from the teamwork subscale of the leader student scale, which was administered as a pre-test before the application, are shown in Table 11 below.

Table 11. Groups t-Test Results of the Teamwork Subscale

Group	N	X	Ss	t	p
Experimental	26	38.52	9.41	0.91	0.35
Control	28	39.54	7.92		

As can be seen in Table 10, the arithmetic mean of the teamwork subscale scores of the experimental group is ($x=38.52$) and the arithmetic mean of the control group is ($x=39.54$). There was no significant difference between the experimental and control groups in terms of basic leadership scores ($t(47)=0.91$, $p>0.05$).

The t-test data regarding the scores of the students in the experimental and control groups of the study from the personal talent subscale of the leader student scale, which was applied as a post-test after the application, are shown in Table 12 below.

Table 12. t-Test Results of the Teamwork Subscale by Groups

Group	N	X	Ss	t	p
Experimental	22	46.84	5.93	1.32	0.00
Control	20	40.46	8.56		

When Table 12 is examined, the average rank of the scores obtained from the teamwork subscale of the experimental group is 46.84, while the mean rank of the scores obtained from the basic leadership subscale of the students in the control group is 40.46. Based on the findings, a significant difference was found between the post-test scores of the experimental and control groups in favor of the experimental group. Based on this finding; It can be said that the teamwork scores of the group completing the leader training program are higher than the personal ability scores of the group not included in the program.

In the research, together with the quantitative data, the views of the students were also analyzed in order to determine the effect of the leadership training program on teamwork skills. Open-ended questions about the teamwork dimension “What does teamwork mean to you?” and “What benefits of teamwork did you notice at the end of this training?” and the analysis of the data obtained in relation to this question is presented in Table 13.

Table 13. Thematic Data on Teamwork Dimension

Theme	Views of Students
Meaning of teamwork	S11....Working together helps to be more successful
	S19...Working in unity and togetherness and reaching the goal
	S 9... Cooperation, sharing
Benefits of teamwork	S2... More useful works will emerge in a short time
	S 6 ...We achieve success with a single word
	S10...A person may not be knowledgeable in all areas. If they work as a team, they will be successful.

When Table 13 is examined, it has been determined that the answers given to the semi-structured interview form are grouped under two main themes: "meaning of

teamwork" and "benefits of teamwork". With the leadership training program, practical activities were organized in order for students to realize the meaning of teamwork and the benefits of teamwork. When the answers of the students to the semi-structured interview form were analyzed, it was determined that the purpose of the program was achieved.

In order to determine the effect of the leadership education program on the service to society scores of gifted students, the t-test was applied to determine the difference between the scores of the students in the experimental group from the community service sub-scale of the leader student scale, which was applied as a pre-test and post-test before the application.

The t-test data regarding the scores of the students in the experimental and control groups of the study from the teamwork subscale of the leader student scale, which was administered as a pre-test before the application, are shown in Table 14 below.

Table 14. Groups t-Test Results of Community Service Subscale

Group	N	X	Ss	t	p
Experimental	26	21.64	3.23	1.67	0.12
Control	28	20.26	2.41		

As seen in Table 14, the arithmetic mean of the teamwork subscale scores of the experimental group is ($x=21.64$) and the arithmetic mean of the control group is ($x=20.26$). There was no significant difference between the experimental and control groups in terms of basic leadership scores ($t(47)=1.67$, $p>0.05$).

The t-test data regarding the scores of the students in the experimental and control groups of the study from the personal ability subscale of the leader student scale, which was applied as a post-test after the application, are shown in Table 15 below.

Table 15. Groups t-Test Results of Community Service Subscale

Group	N	X	Ss	t	p
Experimental	22	26.83	1.32	2.98	0.00
Control	20	21.52	2.06		

When Table 15 is examined, the average rank of the scores obtained from the teamwork subscale of the experimental group is 26.83, while the mean rank of the scores of the students in the control group obtained from the basic leadership subscale is 21.52. Based on the findings, a significant difference was found between the post-test scores of

the experimental and control groups in favor of the experimental group. Based on this finding it can be said that the community service scores of the group completing the leader training program are higher than the personal ability scores of the group not included in the program.

In the study, along with quantitative data, students' views were also analyzed in order to determine the effect of the leadership training program on their community service skills. Open-ended questions about the dimension of community service “What is the importance of community service in your opinion?” and “At the end of this training, did you realize what kind of work you did for community service?” and the analysis of the data obtained in relation to this question is presented in Table 16.

Table 16. Thematic Data on Community Service Dimension

Theme	Sub Theme	Views of Students
The importance of serving to society	Social responsibility	S3...We must fulfill our social responsibilities by participating in the activities of non-governmental organizations. S7...People of all ages can fulfill their social responsibilities S16...At the end of this training, I understood the importance of non-governmental organizations.
	Willingness	S22... It is our duty to serve the society voluntarily. S5... It is the duty of every leader to serve the society voluntarily.
What I've done to serve the community	Environmental Cleaning	S9...I keep my environment clean, I warn those who misbehave S6... I contribute to the future of society by keeping the environment clean.
	Fulfilling my responsibilities	S23...I fulfill my social responsibilities. Because I love my country and the people and animals that live here. S8...From now on, I will participate in social responsibility projects
	Sensitivity	S15...I will work to make other people more sensitive. S13...I will organize campaigns for everyone to be more sensitive to nature and animals.

When Table 16 is examined, it has been determined that the answers given to the semi-structured interview form are grouped under two main themes: "the importance of

serving the community" and "what I have done to serve the community". With the leadership training program, practical activities were organized in order for the students to realize the importance of service to the community and the work they do to serve the community. When the answers of the students to the semi-structured interview form were analyzed, it was determined that the purpose of the program was achieved.

4. Discussion

In this study, activities for each dimension were carried out by considering the dimensions of the student leader scale developed by Tüysüz (2007). These dimensions were determined as basic leadership skills, personal ability, problem solving, teamwork and community service. As a result of the research, it has been determined that the Leadership Education Program has positive effects on students' problem-solving skills, basic leadership skills, development of personal abilities, teamwork skills and community service skills. In other words, as a result of the research, it was concluded that the leadership training program applied to gifted students at an early age contributed to the development of leadership skills of students. This finding of the research is in parallel with the finding of Hoy and Miskel (2012) that the production of new theories with the newest ideas and models for current and future leaders and their experimental testing will have significant and positive contributions to educational organizations in the future. However, Sacks (2009) argues that curriculum development and evaluations for leadership development are a skill that can be taught and strengthened through practice. In the study carried out by Hamdan (2006), it was determined that the students participating in the leadership training program improved their leadership knowledge, leadership skills and attitudes towards leadership performance in a positive way. When the relevant literature is analyzed, although it is argued that leadership is an innate feature (Judge et al.,2002), there are many studies that argue that leadership can be developed through experience (Day et al.,2014; Day et al.,2009; Lacerenza et al., 2017). It has been revealed that leadership training programs especially improve leadership knowledge, skills and personal abilities (Arvey et al.,2006; Avolio et al., 2009; Lacerenza et al., 2017; Powell & Yalçın, 2010).

In this study, it was determined that the leadership training program improved the problem-solving skills of gifted students in a positive way. Practical activities were organized according to the sub-dimensions of being able to recognize the problem, seeing different solutions, using problem-solving techniques, and decision-making in the training program. When the qualitative data of the research were analyzed, it is stated that the problem solving skills of the students had an important place in their leadership skills and that they learned various problem solving techniques at the end of the applied education program. Hendricks et al. (2010) found that the participants were more self-

confident to face the problems they faced at the end of the leadership program and their problem-management and problem-solving skills improved. However, in the study conducted by Hoyt and Kennedy (2008), it was determined that the participants of the leadership training program became more aware of the ways to overcome the problem situations they faced and they were more confident in leading.

One of the strengths of this research is that the application was carried out with students aged between 9-11 and diagnosed as gifted. When the relevant literature is analyzed, it has been determined that although there are many studies on leadership education, most of the studies are done in secondary school and above (Vendetti, 2010). Kudo et al. (2012) stated that most of the research on leadership focuses on adult individuals in business life, military service and social organizations, but the contribution of the trainings applied to adults is not much, taking into account the childhood and adolescence period, leadership studies should be carried out throughout human life. Reichard (2011) argues that it is late to wait until adulthood for leadership development, and although adults have the ability to change and develop, the level of flexibility and openness to learning in children is higher than adults, also he argues that leadership skills training should be applied at an early age. Gökçek (2007) states that leadership is a feature that emerges at an early age, that the leader initiates the action in games or activities and other children follow him/her. Vendetti (2010) stated that leadership education applied at an early age helps children to form and shape their basic attitudes and beliefs, and this education has a lifelong effect. Murphy and Johnson (2011) argue that leadership development can occur more easily in childhood and adolescence than in adulthood.

In this research, it has been determined that the leadership training program has positively developed the dimensions of basic leadership, personal abilities, teamwork and community service, which are determined as leadership sub-dimensions. Qualitative data were also obtained in order to support the quantitative data obtained for these dimensions. When the qualitative data obtained from the opinions of the students participating in the research were analyzed, it was determined that the students defined the meaning of leadership as guiding, reassuring and hardworking and they adopted the democratic leadership style for themselves. This situation contributed to the students who participated in the research to realize the characteristics of leadership and to adopt a leadership style according to them. The students who participated in the research stated that they realized their leadership skills and the personal skills they needed to develop with the leadership training program applied. At the same time, students stated the importance and the benefits of teamwork. However, the students participating in the research stated that it is important to serve the society with the leadership training program and that they realize the importance of their work to serve the society.

5. Conclusions

This research was carried out with gifted students aged 9-11. It is thought that the implementation of the leadership training program in all education levels from pre-school to higher education will contribute to the relevant literature. In addition, studies can be carried out to apply leadership training programs to students who are not identified as gifted but who have talents in different fields.

Teachers have great responsibilities in the development of students' leadership skills. For this reason, practical training should be organized for teachers to improve their leadership skills. Thus, it can be ensured that students' leadership characteristics are recognized and developed from an early age.

In order to develop students' leadership skills, practical training should be organized and students should be included in the projects carried out by non-governmental organizations. For this reason, clubs should be organized in schools for the work of non-governmental organizations and students should be encouraged to practice community service in these clubs.

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