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Research Article

Effectiveness of the SACs Support Education Program: Motivation and attitude towards primary school level courses designed for the gifted

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Article Info	Abstract
Received: 1 Febuary 2023 Accepted: 6 April 2023 Available online: 30 June 2023	In this study, it was aimed to examine the effect of the support education program applied to gifted primary school students Science and Art Centers on the motivation and attitudes of mathematics, science, social studies and Turkish lessons. In the study, pre-post test
Keywords Attitude Gifted education Motivation Primary school Science and Art Center (SAC) Support education program 2149-360X/ © 2023 by JEGYS Published by Young Wise Pub. Ltd. This is an open access article under the CC BY-NC-ND license	experimental design without control group was used. 17 gifted primary school 4th grade students studying at a Science and Art Center in the Eastern Black Sea Region (in the support education program) were included in the study with convenient case sampling. Motivation and attitude scales developed by different researchers for mathematics, science, social studies and Turkish lessons were used to collect the data obtained within the scope of the study. The data were analyzed with a statistical program. In the result of study, it was concluded that the support education program did not cause significant difference in the motivation and attitudes of the students the Turkish lesson. It was found that support education program didn't show significant difference in students' motivation in social studies and mathematics lessons, but showed a significant difference in their attitudes. In addition, it was concluded that support education program had significant difference the motivation the students the science lesson, but there was no significant difference in their attitudes towards the lesson.

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Introduction

Education programs for the gifted have been created in Turkiye as well as in the world. Some of these are Education Program for Gifted Students Bridge with University (EPGBU) (Tortop, 2014), Education Programs for Talented Students (EPTS) (Sak, 2010) and Science and Art Center (SAC) Education Program. The number of SACs is increasing in Turkiye and many workshops and lectures are given on the development of the framework program. Apart from the general framework, teachers are also encouraged to do activities. The SAC Training Program has a structure consisting of five stages. One of the most important stage is the Support Training Program and there are not many studies on the effectiveness of these programs.

Education Programs for Talented Students (EPTS)

Education Programs for Talented Students (EPTS) is a university-based gifted student education program established at Anadolu University. In the program, acceleration and enrichment training in science and mathematics is given to gifted students. EPTS, which is an after-school program, is given to students on the weekend and during the summer break.

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The aim of the program, which was developed to provide education to gifted students in primary and secondary education, is to add innovation and dynamism to the education of gifted students in Turkiye by making use of contemporary scientific education approaches. The program consists of six steps: diagnosis, curriculum, teacher format, teaching, assessment, and teacher training.

Education Program for Gifted Students Bridge with University (EPGBU)

Education Program for Gifted Students Bridge with University (EPGBU), put forward by Tortop (2014), aims to train gifted students in the academic field as scientists. The program, in which academics at the university and teachers in the SAC or science high school can mentor, and scientists in any field of science can be e-mentor, the program consists of three stages. In the first stage of the program, in which studies are carried out to provide self-regulation strategies to primary school 1st and 4th grade students, the field and mentor are determined, in the second stage, in-depth research and study design, and in the last stage, independent research and reporting are carried out (Tortop, 2015).

SACs Education Programs

SACs are one of the separate educational places where different activities are carried out for gifted students (Kurtdas, 2012). In SACs, five different education programs are applied to gifted students in order to gradually develop the talents of gifted students and to follow their development. The integration program, which is the first of these programs, provides activities to obtain information about the psychological, social and personal development of students, not exceeding two months. The second program, which is planned as two years for students who start their education in SACs in the 2nd and 3rd grades of primary school, and at least one year for those who start in the 4th and 5th grades, is the support education program. In this program, students are taught to acquire subjects such as scientific research, group work, problem solving, techniques, creative and critical thinking, effective use of resources, decision-making, learning skills, by making connections with fields such as Turkish language, mathematics, science, social studies or as workshops. The third program, the individual talent awareness program, lasts for 3 years and activities to make students aware of their talents are planned in such a way that they can create products according to their talents and make decisions by thinking about the product. Developing special skills is the fourth phase of the program and takes 2 years. In this program, the student conducts high-level studies in which he can use own knowledge, skills and achievements in the field of interest. The project program, which is the last stage of the program, is the program that the student continues until he graduates from high school and produces projects under the guidance of his advisor (Ministry of National Education of Turkiye (MoNET), 2019). In order for gifted students to be successful, their motivation must be high (Phillips & Lindsay, 2006).

After the orientation education, a support education program is applied to the 2nd, 3rd and 4th grade primary school students who start SACs. In support education programs, if the student is in the 4th grade, lessons are given by the primary school teachers or branch teachers, while the 2nd and 3rd grade students are given education by the primary school teachers. In the support education program, students are tried to gain the skills of cooperation, communication, learning to learn, working in groups, scientific research, problem solving, entrepreneurship, critical and creative thinking, efficient use of resources, social responsibility, technology literacy and effective decision making (MoNET 2020).

Motivation of Gifted to Academic Courses

Motivation is the power that activates and sustains a person for an activity to reach a certain goal (Schunk et al., 2008; Balaban, 2006). Motivation, it is divided into two as intrinsic and extrinsic motivation (Afzal & Khan, 2010; Aktan & Tezci, 2013). Intrinsic motivation; It is the power that activates the individual due to personal needs like interest and curiosity (Akbaba & Aktas, 2005). Intrinsic motivation; It plays an important role in supporting students' self-learning, increasing their learning, making what they learn permanent and learning skills, and it is the type of motivation that seems to be quite high in gifted students (Kwon et al., 2001; Skollingsberg, 2003; Su & Reeve 2011). Extrinsic motivation, which is another type of motivation; It differs from intrinsic motivation because the individual does not have control over himself and is around him (Yildiz, 2010). In extrinsic motivation, the force that pushes the individual to exhibit the behavior; it is not in the individual but in the reinforcers (Akbaba & Aktas, 2005; Yildiz, 2010). The lack of motivation underlies the academic failure of the majority of gifted students (Phillips & Lindsay, 2006; Sak, 2010;

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Wigfield & Wentzel, 2007). To increase the motivation of gifted students in lessons; it is necessary to give feedback to students about their work, to encourage students to participate in national and international activities, to avoid difficult tasks that will distract students who have difficulty in doing the activities, to direct students to activities that improve their metacognitive skills, and to provide flexibility in activities considering the individual differences and group characteristics of students (Cildir, 2020). When compared to the activities in which gifted students can express themselves by revealing their talents and interests, their motivation increases as well as their lesson success and attitudes (Koshy, 2002; Rinn, Plucker & Stocking, 2010).

Attitude that affects people's behavior, hatred, love and learning, attitude that cannot be observed directly; are the innate tendencies that are learned over time that lead to exhibit various behaviors in the face of situations and objects (Demirel, 1993; Guven & Uzman, 2006; Morgan, 2005). Attitudes; they are tendencies that persist in certain periods of human life, stop people from exploring their environment, from looking impartially, and cause them to behave in a positive and negative way (Tavsancil, 2010). There are many factors that affect the attitudes of gifted students. First of all, it is seen that attitudes of students who come from families with high level the education are high (Vu, 2011). Then, it is seen that the preparation of the programs for gifted students, the programs prepared, the schools reinforced with the educational materials in which these programs are applied, the teachers who receive education for gifted students and treat them with care, differentiate and enriched education positively affect the attitudes of gifted students (Eder, 1989; Gubbels, Segers & Verhoeven, 2014; Koc, 2016; Vogl & Preckel, 2014; Yetim-Karaca & Turk, 2020). In addition, cooperative learning environments prepared for gifted students also reflect positively on students' attitudes (Ramsay & Richards, 1997). The positive attitudes that gifted students develop towards school, teachers and lessons are also positively reflected in their success (Ehrman 1996; McCoach & Siegle, 2003).

In literature, there are studies examining views, motivations and attitudes of gifted students towards mathematics, science, social studies and Turkish lessons (Alevli & Okur, 2021; Asut & Köksal, 2015; Bolat, 2020; Gubbels, Segers & Verhoeven, 2014; Kahyaoglu & Pesen, 2013; Kanlı & Emir, 2009; Kunt & Tortop, 2017; Levenberg & Shaham, 2014; Okur & Özsoy, 2013; Tanrıkulu & Yogurtcu, 2018; VanTassel-Baska, 2003). In addition, there are studies examining the views and attitudes of students, teachers and parents of students about SACs and the education given in these centers (Epcacan & Ural, 2019; Koc, 2016; Saglam & Polat, 2020; Weiner, 1992). However, in the studies conducted, it is seen that how the activities applied in the mathematics, science, social studies and Turkish lessons in the support education program in the SACs reflect on the lesson motivations and attitudes of the gifted students. In this way, it is important to determine the effectiveness of the activities for the lessons applied in the scope of the support education program on the motivation and attitudes of the students. In addition, it is thought that investigating how the activities for each lesson applied during a term are reflected on the motivation and attitudes of the students will help to determine the special talent areas of the gifted students early.

Problem of Study

With this study, it was aimed to examine the effectiveness of the support education program applied to gifted primary school students in SACs on motivation and attitudes towards courses? Does the support education program make a significant difference in the motivation and attitudes of gifted students in Turkish/social studies /mathematic/science lesson?

Method

Research Model

This study, which was conducted to examine the effects of the support education program applied to gifted primary school students in SACs, on the motivation and attitudes of mathematics, science, social studies and Turkish lessons, was shaped according to the pre-post test the experimental design without a control group. The pre-post-test experimental design without the control group, in which there is no matching and randomness, is called a single-factor in-group or repeated measures design (Buyukozturk et al., 2013). Gifted primary school students were included in the

study in a single group and since they were included in the study without any selection, pre-post test experimental design was used without a control group.

Study Group

17 of gifted students were included in the study through convenient case sampling. Convenience sampling method is the sampling method used to accelerate the research and to reach people easily (Ekiz, 2009). Due to the easy accessibility of gifted primary school 4th grade students enrolled in a support program a SAC in the Eastern Black Sea region, the appropriate case was chosen by sampling. Eight of the gifted students participating the study are girls and nine are boys. 12 of the gifted students like the science lesson, 2 of them likes the mathematics lesson, 2 of them likes the physical education and game lesson, and 1 of them likes the mathematics lesson.

Data Collection Tools

As data collection tools, Turkish Lesson Motivation and Attitude Scale developed by Erdem and Gozukucuk (2013), Social Studies Lesson Motivation Scale developed by Gömleksiz and Kan (2012), Social Studies Lesson Attitude Scale developed by Ulu Kalin and Topkaya (2017) Mathematics Attitude Scale developed by Ocak and Sonmez (2010) and Mathematics Motivation Scale developed by Balantekin and Oksal (2014) were used. In addition, the Motivation Scale for Learning Science Lessons developed by Yilmaz and Huyuguzel Cavas (2007), and the Attitude Scale towards Science and Technology Lesson developed by Kenar and Balci (2012) were used.

Turkish Lesson Motivation and Attitude Scale

The scale developed by Erdem and Gozukucuk (2013) has 15 questions in the motivation section and 20 questions in the attitude section. It was observed that the Cronbach alpha value was calculated as .75 in motivation and .76 in attitude. The scale, which was prepared in a 3-point Likert style, was prepared to measure the Turkish motivation and attitudes primary school students.

Social Studies Lesson Motivation Scale

The scale consisting of 20 questions and developed by Gömleksiz and Kan (2012) was prepared in a 5-point Likert format. The KMO value of scale was calculated as .89, the Cronbach alpha value as .79. It was prepared in order to reveal the motivation of primary school students in social studies lesson.

Social Studies Lesson Attitude Scale

There are 12 questions in the scale developed by Ulu Kalin and Topkaya (2017). The KMO value of scale was calculated as .87, the Bartlett test was calculated as .00. In addition, it was observed that all differences in the averages of the upper and lower groups of 27% were significant. The scale, which was prepared in a 4-point Likert style, was prepared to measure primary school students' attitudes towards social studies.

Attitude Scale Towards Mathematics Activities

The scale developed by Ocak and Sönmez (2010) is a 5-point Likert scale consisting of 19 questions. The KMO value of scale was .83, the Bartlett test was .00, the Cronbach alpha extrinsic motivation value was .71, amotivation was .73, and intrinsic motivation was .74. It was prepared to reveal the attitudes of primary school students towards math activities.

Mathematics Motivation Scale

The scale developed by Balantekin and Oksal (2014) is a 5-point Likert scale consisting of 14 questions. The KMO value of scale was calculated as .90 and the Cronbach alpha value as .92. It was prepared to reveal the mathematics motivation of primary school students.

Attitude Scale Towards Science and Technology Lesson

The scale developed by Kenar and Balcı (2012) consists of 30 questions and is prepared in the form of a 5-point Likert scale. The KMO value of scale was calculated as .81, Bartlett test as .000, and Cronbach alpha as .83. It was prepared in order to reveal the attitudes of primary school students towards science and technology lesson.

Motivation Scale for Learning Science Lesson

The scale developed by Yılmaz and Huyuguzel Cavas (2007) is a 5-point Likert scale consisting of 23 questions. The KMO value scale was calculated as .91, the Cronbach alpha value as .87. It was prepared in order to reveal the motivation of primary school students to learn science lesson.

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In the study, the pre-test data of gifted primary school students in Turkish, mathematics, social studies and science lessons were collected in the last week of the first semester of the 2021-2022 academic year. Then, from the first week to the last week of the second semester, the activities in the books prepared by the "Ministry of National Education, General Directorate of Special Education and Guidance, Department of Development of Special Talents" were applied. Each week, one activity from each lesson is definitely included. Post-test data were collected in the last week of the semester. The activities carried out in the lessons are shown in Table 1.

Lesson	Activities
Turkish	Who will sit where?, I criticize, the story is completed, I stamp, I recognize-I introduce, I think, a
	story from Masnavi, signs and symbols, my games are timeless, creative reading, poetry illustration,
	book to book, my book tree, I listen to it in the library one day, every day
Mathematic	Multiplication with fingers, interesting number patterns, kendoku, field with origami, matabu,
	admiral sunk, 15 game, stone reduction game, broken key calculator method, Gauss method,
	proportion with table, fast running wins, orienteering
Science	Scientists, using the laboratory, using a microscope, making a support and movement system
	model, preparing TABU cards about the digestive system, separating the mixtures, my
	thermometer, I am making my planet, the power of the magnet, the submarine model, the balloon
	car, the examination of bacteria, the respiratory and circulatory system, discover buoyancy.
Social Studies	Who am I, I join social groups, I change as I grow up, the places I live, the little traveler, our place
	in the world, what's wrong with a city, we exist with our wayfinding tools, sun directions, cultural
	heritage items, traditions and customs, the beauties of Anatolia, my poems and tales, my region's
	folk dances.

	Table	1. Activities	in Turkish,	Mathematics,	Science and	Social Stu	dies Lessons
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The pre-post test data obtained in the study conducted to examine the effects of the support education program applied gifted primary school students in SACs on the motivation and attitudes of mathematics, science, social studies and Turkish lessons were analyzed by the SPSS 21.0 program. First of all, the data obtained from the motivation and attitude scales, which were applied to gifted primary school students as a pre-post test in Turkish, mathematics, social studies and science lessons, were analyzed descriptively (minimum and maximum points, standard deviation, arithmetic mean) and then pre-post tests of the scales. Statistically differentiating between them was analyzed by the Wilcoxon Signed Rank Test. Wilcoxon Signed Rank Test was applied because the number of students was less than 30. In addition, the effect size was calculated in cases where motivation and attitude were significant.

Results

In this part of the study, the results of the descriptive analysis and statistical analysis carried out to examine effect of the support education program on the motivation and attitudes of gifted students in mathematics, science, social studies and Turkish lessons are included.

The Effect of Support Education Program on Turkish Lesson Motivation and Attitudes of the Gifted Students The results of the analyzes carried out to determine effect of the support education program on the motivation and attitude of gifted students in the Turkish lesson are given in Tables 2 and 3.

Variables	Tests	Ν	Min.	Max.	X	Sd
Attitude	Pretest	17	1.25	2.80	2.01	.48
	Posttest	17	1.55	2.90	2.17	.37
Motivation	Pretest	17	1.40	2.80	2.20	.46
	Posttest	17	1.73	3.00	2.40	.36

Table 2. Turkish lesson motivation and attitude descriptive analysis

It is seen that both the attitude and motivation minimum, maximum and average scores of gifted primary school students increased in the post-test compared to the pre-test, while the standard deviation score decreased. In this sense, it can be thought that the support education program applied to gifted primary school students SACs increases their

Turkish motivation and attitudes. The statistical significance of this increase was analyzed with the Wilcoxon Sign Ranks test and the results the analysis are shown in Table 3.

Variables	Post-pre	n	Mean r.	Sum of R.	Z	partial η²	р
Attitude	Neg.	4	7.88	31.50			
	Pos.	11	8.05	88.50	-1.621	-	.11
	Equ.	2					
Motivation	Neg.	3	9.67	29.00	-1.763	-	
	Pos.	12	7.58	91.00			.08
	Equ.	2					

 Table 3. Turkish lesson motivation attitude pre-post-test significance

It was determined that the support education program applied to gifted primary school students in SACs did not create statistical significance in the motivation and attitudes of Turkish lessons (p> .05).

The Effect of Support Education Program on Social Studies Lesson Motivation and Attitude of Gifted Students

The results of the analysis conducted to examine effect of the support education program on the motivation and attitude of gifted students in the social studies lesson are given in Tables 4 and 5.

Variables	Tests	Ν	Min.	Max.	\overline{X}	Sd		
Attitude	Pre	17	1.08	4.00	2.87	.86		
	Post	17	2.33	4.00	3.45	.58		
Motivation	Pre	17	2.39	4.83	3.58	.66		
	Post	17	3.00	4.48	3.68	.48		

Table 4. Social studies lesson motivation and attitude descriptive analysis

It is seen that gifted primary school students' social studies both attitude and motivation minimum scores increased in the posttest compared to the pretest, while the standard deviation score decreased. In this sense, it can be thought that the support education program applied to gifted primary school students in SACs increases their social studies motivations and attitudes. The statistical significance of this increase was analyzed with the Wilcoxon Sign Ranks test, the results are shown in Table 5.

Variables	Post-pre	n	Mean r.	Sum of R.	Z	partial η²	р	
Attitude	Neg.	1	6.00	6.00				
	Pos.	10	6.00	60.00	-2.401	.58	.02	
	Equ.	6						
Motivation	Neg.	6	6.33	38.00	525			
	Pos.	7	7.57	53.00	525	-	.60	
	Equ.	4						

Table 5. Social Studies Lesson Motivation Attitude Pre-Post-Test Significance

While it was determined that the support education program applied to gifted primary school students in SACs did not create statistical significance in the motivation of the social studies lesson (p > .05), it was determined that it did in their attitudes (p < .05).

The Effect of the Support Education Program on the Mathematics Lesson Motivation and Attitudes of the Gifted Students

The results of the analysis conducted to determine effect of the support education program on the motivation and attitude of gifted students in the mathematics lesson are shown in Tables 6 and 7.

Table 6. Descriptive Analysis of Motivation and Attitude in Mathematics Lesso	on
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Variables	Tests	Ν	Min.	Max.	\overline{X}	Sd
Attitude	Pre	17	1.00	5.00	3.07	.82
	Post	17	2.32	5.00	4.08	.82
Motivation	Pre	17	1.43	3.57	2.43	.51
	Post	17	1.86	3.36	2.52	.37

It is seen that gifted primary school students' mathematics lesson both attitude and motivation are minimum, their average scores increased in the post-test compared to the pre-test, while the standard deviation score decreased in motivation and remained the same in attitude. In this sense, it can be thought that the support education program applied to gifted primary school students SACs increases their motivation and attitudes towards mathematics lessons. The statistical significance of this increase was analyzed with the Wilcoxon Sign Ranks test, and the results are shown in Table 7.

Variables partial Post-pre Ν Mean r. Sum of R. z р η² Attitude Neg. 2 2.75 5.50 Pos. 9.32 130.50 -3.233 .78 .00 14 Equ. 1 4 Motivation Neg. 6.13 24.50 -.757 7 Pos. 5.95 41.50 .45 Equ. 6

Table 7. Mathematics Lesson Motivation Attitude Pre-Post-Test Significance

While it was determined that the support education program applied to the gifted primary school students in the SACs did not create statistical significance in the motivation of the mathematics lesson (p > .05), it was determined that it did in the attitudes (p < .05).

The Effect of Support Education Program on Science Lesson Motivation and Attitudes of Gifted Students The results of analysis carried out to determine effect of the support education program on the motivation and attitude the students in the science lesson are presented in Tables 8 and 9.

Variables	Tests	Ν	Min.	Max.	\overline{X}	Sd
Attitude	Pre	17	2.00	3.13	2.80	.32
	Post	17	2.58	3.39	2.90	.22
Motivation	Pre	17	2.30	4.70	3.34	.79
	Post	17	3.30	5.00	4.23	.48

Table 8. Descriptive analysis of science lesson motivation and attitude

It is seen that the minimum, maximum and average scores of gifted primary school students in science, both attitude and motivation, increased in the post-test compared to the pre-test, while the standard deviation score decreased. In this sense, it can be thought that the support education program applied to gifted primary school students SACs increases their motivation and attitudes towards science. The statistical significance of this increase was analyzed with the Wilcoxon Sign Ranks test, and the results are presented in Table 9.

 Table 9. Science lesson motivation attitude pre-post-test significance

	Post-pre	n	Mean r.	Sum of R.	Z	partial η²	р
Attitude	Neg.	9	7.67	69.00			
	Pos.	8	10.50	84.00	.355	-	.72
	Equ.	0					
Motivation	Neg.	3	3.50	10.50	-3.125	7(
	Pos.	14	10.18	142.50		./6	.00
	Eau.	0					

While it was determined that the support education program applied to gifted primary school students in SACs did not create statistical significance in the attitudes of the science lesson (p > .05), it was determined that it created their motivation (p < .05).

Conclusion and Discussion

It was found that the support education program applied to gifted students in Science and Art Centers increased the motivation and attitudes of Turkish, social studies, mathematics and science lessons, but this increase was statistically significant in science motivation, social studies and mathematics lesson attitudes. Also, it was determined that it was not significant in Turkish lesson motivations and attitudes, mathematics and social studies motivations, and science attitudes.

Turkish Language Lesson

Although the support education program increased the Turkish lesson motivation and attitude of the gifted students, it was concluded that this increase was not at a significant level. Just like in the study, it is seen in some studies that the Turkish lesson attitudes of gifted students are high and the teaching of fairy tales by drama method has a positive effect on their motivation (Okur & Ozsoy, 2013; Tanrikulu & Yogurtcu, 2018).

Social Studies Lesson

It was determined in the study that the support education program increased the motivation and attitude the gifted students in the social studies lesson, but the increase was only meaningfully reflected in the attitude. In Bolat's (2020) study, it is seen that gifted students have a positive perception towards the social studies lesson.

Science Lesson

In the science lesson, it was found that the support education program increased the motivation and attitudes of gifted students, but the significant increase was only in science motivation. In some studies, it was concluded that the science motivation and attitudes of gifted students are high (Asut & Koksal, 2015; Dolu & Urek, 2013; Kahyaoglu & Pesen, 2013; Kanli & Emir, 2009).

Mathematics Lesson

In the mathematics lesson, although the support education program increased the mathematics motivation and attitude of the gifted students, the increase was found to be significant only in the attitude. In most studies, it has been concluded that gifted students have high mathematics attitudes (Adediwura 2011; Erdogan & Yemenli, 2018).

There may be many reasons why the education in the support education program applied in SACs does not create a meaningfulness in the attitude of the social studies and mathematics lesson and the motivation of the science lesson, but the motivation and attitude of the Turkish lesson, the motivation of the social studies and mathematics lessons, and the attitude of the science lesson. For example, gifted students think that the Turkish lessons taught in the SAC are not long and pleasant and do not contribute to their personal development. In addition, the fact that gifted students get bored with the lesson and cannot endure failure causes them to have negative feelings towards the lessons (Sağlam & Polat, 2020). In fact, the negative feelings that students who come to SACs after completing their education activities in their own schools develop towards the lessons as a result of the problems they experience in the questions in the exams at their schools and during the research process continue in the SACs (Celikdelen, 2010). When the families of gifted students have high expectations from their children, and students cannot find the physical equipment they expect in SACs, school becomes boring for students with high sensitivity and their motivation towards lessons decreases (Cetin & Dogan, 2018; Strip & Hirsch, 2000). However, if appropriate programs are prepared for gifted students in SACs and if differentiated and enriched methods that take into account their learning styles are used, students' motivation and attitudes increase (Camci-Erdogan & Kahveci, 2015; Gubbels, Segers & Verhoeven, 2014; Kanli & Emir, 2009; Rinn, Plucker & Stocking, 2010; Ysseldyke, Tardrew, Betts, Thill & Hannigan, 2004; Tomlinson & Alan, 2000).

In this context, well-equipped SACs for the positive development of the motivation and attitudes of the gifted students, the preparation of the programs for the gifted students well, the use of differentiated and enriched lesson activities in accordance with the learning styles of the gifted students, considering the individual differences of the gifted

students, how the families can respond to the special situations of their children. It can be thought that he should be supported in the way he should behave.

Recommendations

- In SACs, in order to improve the motivation and attitudes of gifted students, learning styles of gifted students can be determined and teaching activities can be continued with small groups as much as possible.
- Teachers in SACs can prepare enriched and differentiated lesson activities in order to improve the lesson motivation and attitudes of gifted primary school students.
- The support education program applied in SACs can also be made for the lesson concerns and interests of gifted students.
- The work carried out with the gifted students enrolled in the support education program can also be carried out with the students of the individual talent awareness program.

Limitations of Study

The study is limited to a single group of 17 gifted primary school students. For this reason, a simple experimental design was used to determine the effectiveness of the support education program, and since there was no control group, the effect of the support education program in different SACs could not be compared.

Acknowledgment

In order to collect data from the study group in the research, the necessary ethical permission for research was obtained from Ethics Commission of the University of Trabzon (decision dated 14/01/2022/2022-1/1.4) by applying official procedures. In addition, permission was obtained from the families of the students studying at the Trabzon Science and Art Center with a parent consent form.

References

- Adediwura, A. A. (2011). The development and confirmatory factor analysis of a scale for the measurement of gifted students' attitude towards mathematics. *World Journal of Education, 1*(1), 52-62.
- Afzal, H., Ali, I., & Khan, M. A. (2010). A study of university students" motivation and its relationship with their academic performance. *International Journal of Business and Management*, 5(4), 80-88.
- Akbaba, S., & Aktas, A. (2005). İçsel motivasyonun bazı değişkenler açısından incelenmesi (Searching internal motivation according to some variables). *M.U. Atatürk Faculty of Education Journal of Educational Sciences, 21*, 19-42.
- Aktan, S., & Tezci, E. (2013). Matematik motivasyon ölçeği (MMÖ) geçerlik ve güvenirlik çalışması (The mathematical motivation scale (mms) study ofreliability and validity). *The Journal of Academic Social Science Studies, 6*, 57-77.
- Alevli, O. (2018). Özel yetenekli öğrencilerin okuma alışkanlığında ailelerinin duyarlılığı (Sensitivity of their families on the reading habit of the gifted students). *Journal of National Education*, *47(1)*, *129-142*.
- Asut, N., & Koksal, M. S. (2015). Üstün zekâlı öğrencilerin epistemolojik inançlarının fen öğrenmeye yönelik motivasyon düzeyi ve başarıyla ilişkisi (Relationship of gifted students' epistemological beliefs with achievement and motivation towards science learning). *Duzce University Journal of Social Sciences Institute, 2,* 22-44
- Balaban, J. (2006). Öğrenmede güdülenme (motivation in learning). Y. Kuzgun ve D. Deryakulu, (Ed.), In individual differences in education (s. 169-199). Ankara: Nobel Publishing.
- Bolat, H. (2020). Üstün zekalı ve yetenekli öğrencilerin bilim ve sanat merkezindeki ve okuldaki sosyal bilgiler dersine yönelik metaforik algıları (The metaphorical perceptions of the gifted and talented students towards social studies lesson in the science and art centre and in their school). *Journal of Social Sciences of Mus Alparslan University, 8*(4), 1135-1144.
- Buyukozturk, Ş., Kilic Çakmak, E., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2013). Bilimsel araştırma yöntemleri (Scientific research methods). Ankara: Pegem Academy Publishing House.
- Camci-Erdoğan, S., & Kahveci, N., G. (2015) Farklılaştırılmış fen ve teknoloji öğretiminin üstün zekalı ve yetenekli öğrencilerin tutumlarına etkisi (The effect of differentiated science and technology instruction on gifted and talented students' attitude). *Journal of Hasan Âli Yücel Faculty of Education, 12*(1), 191-207.
- Cildir, M. (2020). About distance mathematics education of gifted students studying at secondary school. In S. Idin (Ed.), Research highlights in education and science 2020, (pp. 142- 152). ISRES Publishing.
- Celikdelen, H. (2010). Bilim sanat merkezlerinde bilim birimlerinden destek alan üstün yetenekli öğrencilerin kendi okullarında fen ve teknoloji dersinde karşılaştıkları güçlüklerin değerlendirilmesi (The evaluation of the difficulties of talented students who face during the science and technology lessons in their own schools, are enrolled in science and art centers). Unpublished master thesis, Selçuk University, Konya.

- Cetin, A., & Dogan, A. (2018). Bilim ve sanat merkezlerinde görev yapan matematik öğretmenlerinin karşılaştıkları sorunlar (Problems that mathematics teachers encounter in science and art centers). *Ankara University Faculty of Educational Sciences Journal of Special Education, 19*(4), 615-641. doi:10.21565/ozelegitimdergisi.370355
- Demirel, M. (1993). Öğrenme stratejilerinin öğretilmesi (Teaching learning strategies). Education anad Science, 17(83), 52-59.
- Dolu, G., & Urek, H. (2019). Kimyasal değişim temalı etkinliklerin özel yetenekli öğrencilerin kimyasal değişim-ışık ilişkisini kavramsal anlama düzeylerine etkisinin incelenmesi (The effect of chemical change theme activities on conceptual understanding levels of exceptionally talented students related to chemical change-light relationship). *Journal of National Education, 48*(222), 33-58.
- Eder, F. (1989). Das Schul- und Klassenklima in der Wahrnehmung hochleistungsdisponierter Schüler [The school and classroom climate as perceived by highly gifted students]. Zeitschrift für Pädagogische Psychologie, 3, 109-122.
- Ehrman, M. (1996). An exploration of adult language learner motivation, selfefficacy, and anxiety. In R. L. Oxford (Ed.), *Language Learning Motivation: Pathways to the New Century* (s. 81-103). HI: University of Hawaii Press.
- Ekiz, D. (2009). Bilimsel araştırma yöntemleri (Scientific research methods). Ankara: Anı Publishing.
- Epcacan, U., & Oral, B. (2019). Özel yetenekli öğrencilerin Bilsem'deki öğretim uygulamalarına ilişkin görüşleri (The perceptions of talented students about teaching practices in SAC). *Siirt University Journal Of Social Sciences Institute*, 7(13), 139-166.
- Erdoğan, A., & Yemenli, E. (2018). Gifted students' attitudes towards mathematics: a qualitative multidimensional analysis. *Asia Pacific Education Review, 20*, 37–52.
- Gubbels, J., Segers, E., & Verhoeven, L. (2014). Cognitive, socioemotional, and attitudinal effects of a triarchic enrichment program for gifted children. *Journal for the education of the gifted*, *37*(4), 378-397.
- Guven, B., & Uzman, E. (2006). Ortaöğretim coğrafya dersi tutum ölçeği geliştirme çalışması (A study to develope a scale fort measuring attitude toward high school geography course). *Kastamonu Journal of Education, 14*(2), 527 -236.
- Kahyaoglu, M., & Pesen, A. (2013). Üstün yetenekli öğrencilerin fen ve teknolojiye yönelik tutumları, öğrenme ve motivasyon stilleri arasındaki ilişki (The relationship between gifted students' attitudes towards science and technology and their learning and motivation styles). *Turkish Journal of Giftedness and Education*, 3(1), 38-49.
- Kanli, E., & Emir, S. (2009). Fen ve teknoloji öğretiminde probleme dayalı öğrenmenin üstün zekalı ve normal öğrencilerin motivasyon düzeylerine etkisi (The effect of problem based learning in science and technology to the motivation levels of gifted and normal students). *The Journal of SAU Education Faculty, 18,* 42-61
- Koc, I. (2016). Üstün zekâlı ve üstün yetenekli öğrenci velilerinin Bilim ve Sanat Merkezi'yle ilgili görüşleri: Bir BİLSEM örneği (Gifted and talented student about the science and art center of the parents opinions: An example of SAC). *Journal of Gifted Education and Creativity, 3*(3), 1-10.
- Koshy, V. (2002). Teaching gifted children 4-7: A guide for teachers. London: David Fulton Publishers Ltd.
- Kunt, K., & Tortop, H.S. (2017). Examination of science and technology teachers' attitude and opinions related giftedness and gifted education in Turkey. *Journal for the Education of Gifted Young Scientists, 5*(1), 37-54.
- Kurtdaş, M. Ç., (2012). Üstün yetenekliler ve üstün yeteneklilerin eğitiminde Bilim ve Sanat Merkezleri (Malatya Bilim ve Sanat Merkezi örneği)[Gifted Students and the Education of Gifted Students in Science and Arts Centers (Malatya Science and Arts Centers Case)], *Home of Wisdom*, 5(10), 151–181.
- Kwon, S., Seo, Y., & Lee, S. (2001). Designing Woo based environment for effective learning community building. *Korean Association for Educational Information and Broadcasting*, 7(4), 147–170.
- Levenberg, I., & Shaham, C. (2014). Formulation of word problems in geometry by gifted pupils. *Journal for the Education of the Young Scientist and Giftedness*, 2(2), 28-40.
- McCoach, D. B., &, Siegle, D. (2003). Why try? Factors that differentiate underachieving gifted students from high achieving gifted students. Retrieved from https://files.eric.ed.gov/fulltext/ED454678.pdf
- MoNET (2019). *Milli Eğitim Bakanlığı Bilim ve Sanat Merkezleri yönergesi (Ministry of National Education Science and Art Centers directive)*. Retrieved from http://orgm.meb.gov.tr/meb_iys_dosyalar/2016_10/07031350_bilsem_yonergesi.pdf
- MoNET (2010). BİLSEM'lerde uygulanan eğitim ve programlar (Training and programs implemented in SACs). Retrieved from https://orgm.meb.gov.tr/www/bilsemlerde-uygulanan-egitim-ve-programlar/icerik/1935.
- Okur, A., & Ozsoy, Y. (2013). Üstün zekalı öğrencilerin Türkçe dersine yönelik tutumlarının incelenmesi: Bartın Bilsem örneği (A research for the attitudes of gifted students' towards Turkish lesson: A sample of Bartın SAC). *Journal of Theory and Practice in Education*, *9*(3), 254-264.
- Phillips, N., & Lindsay, G. (2006) Motivation in gifted students, High Ability Studies, 17(1), 57-73.
- Ramsay S. G., & Richards, H. C. (1997), Cooperative learning environments: Effects on academic attitudes of gifted students. *Gifted Child Quarterly*, *41*(4), 160-168.
- Rinn, A. N., Plucker, J. A., & Stocking, V.B. (2010). Fostering gifted students'affective development: A look at the impact of academic self-concept. *TEACHING Exceptional Children Plus, 6*(4), 1-13.
- Saglam, A., & Polat, I. (2020). Özel yetenekli öğrencilerin sınıf ortamındaki davranışlarına yönelik öğretmenlerin görüşleri (Teachers' views on the behavior of specially gifted students in the classroom). *Iğdır IUniversity Journal Social Science, 24*, 473-494.
- Sak, U. (2010). Üstün yetenekliler eğitim programları modeli (ÜYEP) ve sosyal geçerliği [An overview and social validity of the education programs fort he talented students model (EPTS)]. *Education and Science, 36*(161), 213-229.

- Schunk, D., Pintrich, P. R., & Meece, J. L. (2008). *Motivation in education: Theory, research and applications* (3rd ed.). Upper Saddle River: Pearson.
- Skollingsberg, G. E. (2003). A comparison of intrinsic and extrinsic classroom motivational orientation of gifted and learningdisabled students. *Roeper Review*, *26*(1), 53-53.
- Streitz, R. (1922). Gifted children and provisions for them in our schools. University of Illinois Bulletin, 20(13), 2-12.

Strip, C.A., Hirsch, G. (2000). Helping gifted children soar: A practical guide for parents and teachers Great Potential Press.

- Su, S. (2021). Özel yetenekli öğrencilerin tarih dersine ilişkin algı düzeylerinin metaforlarla incelenmesi (BİLSEM Örneği) [Analysis of History Perception Levels of the Gifted Students Through Metaphors]. *Turkish Scientific Researches Journal*, 6(2), 400-414.
- Tanrikulu, F., & Yogurtcu, M. (2018). Özel yetenekli öğrencilerin eğitiminde masalları drama yöntemiyle işlemenin Türkçe dersine etkisi (The effect of teaching fairy tales to the gifted students through drama on Turkish lesson). *International Journal of Turkish Literature, Culture and Education*, 7(4), 2572-2590.
- Tavsancil, E. (2010). *Tutumların ölçülmesi ve SPSS ile veri analizi (Measuring attitudes and data analysis with SPSS)*. Ankara: Nobel Publishing.
- Tomlinson, C. A., & A llan, S. D. (2000). *Leadership for differentiated classroom: Responding to theneeds of all learners*. Alexandria, VA: ASCD.
- Tortop, H. S. (2014). Gifted students' views about first stage of the education program for the gifted students' bridge with university (EPGBU). *Turkish Online Journal of Distance Education-TOJDE*, *15*(2), Article 5.
- Tortop, H.S. (2015). Üstün yetenekliler üniversite köprüsü eğitim programı ÜYÜKEP modeli (EPGBU model of gifted university bridge education program). Düzce: Genç Bilge Publishing.
- Van Tassel-Baska, J. (2003). *Differentiating the language arts for high ability learners K–8. ERIC Digest.* VA: ERIC Clearinghouse on Disabilities and Gifted Education. Retriewed from: https://files.eric.ed.gov/fulltext/ ED474306.pdf.
- Vogl K, Preckel F. (2014). Full-time ability grouping of gifted students: impacts on social self-concept and school-related attitudes. *Gifted Child Quarterly*, 58(1), 51-68.
- Vu, P. (2011) Gifted studends' profiles and their attitudes towards a gifted program: The case of Vietnam. *Gifted and Talented International*, 26(1-2), 81-87.

Weiner, I. B. (1992). Psychological disturbance in adolescence (2nd ed.). New York, NY: Wiley.

- Wigfield, A., & Wentzel, K. R. (2007). Introduction to motivation at school: Interventions that work. *Educational Psychologist*, 42(4), 191–196.
- Yetim-Karaca, S., & Turk, T. (2020). Ortaokul matematik dersi öğretim programının üstün yetenekli öğrencilerin eğitimi açısından öğretmen görüşlerine göre değerlendirilmesi (The evaluation of secondary school mathematics curriculum according to teachers' views in terms of education of gifted students). *Turkish Journal of Computer and Mathematics Education*, *11*(1), 241-279.
- Yildiz, G. (2010). İlköğretim 7. sınıf öğrencilerinin matematik başarıları, biliş üstü becerileri, düşünme stilleri ve matematik öz kavramları arasındaki ilişkiler (The relationships between secondary school 7th grade students' mathematics achievement, metacognitive skills, thinking styles and mathematics self-concepts). Unpublished doctorate thesis. Yıldız Teknik University, Istanbul.
- Ysseldyke, J, Tardrew, S, Betts, J, Thill, T., & Hannigan, E (2004). Use of an instructional management system to enhance math instruction of gifted and talented students. *Journal for the Education of the Gifted*, 27(4), 293-310.