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Research Article

Examination of prospective primary mathematics teachers' attitudes and self - efficiency beliefs towards gifted education in terms of various variables

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Abstract

The aim of this study is examining whether prospective primary mathematics teachers' attitudes and self-efficacy beliefs towards the education of gifted students differ according to desire to work at Science and Art Center (SaC), having training on gifted students and knowing a gifted individual. With this aim "Self-Efficacy Belief Scale for the Education of Gifted Students" developed by Tortop (2014) and "Attitude Scale for the Education of Gifted Students" adapted to Turkish by Tortop (2012) is applied to 218 prospective teachers who are studying at İnönü University of Education Faculty of Primary Mathematics Teaching Program in 2016-2017. It is demonstrated that prospective primary mathematics teachers' attitudes towards the education of gifted students don't differ according to desire to work at SaC, having training on gifted students and knowing a gifted individual and it is examined with t-test. It is demonstrated that prospective primary mathematics teachers' self-efficacy beliefs towards the education of gifted students differ in favor according to desire to work at SaC and knowing a gifted individual. It is seen that prospective primary mathematics teachers' self-efficacy beliefs towards the education of gifted students don't differ according to having training on gifted students. Besides when the self-efficacy beliefs of teacher islands are examined, a differentiation is seen in favor of male prospective teachers.

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Introduction

According to NCTM (1995), superior ability in mathematics; It is a function of ability, motivation, belief, experience and opportunity. These values are not fixed, they show variable feature. These variables need to be developed in order for gifted mathematics students to reach their maximum abilities. The characteristics of giftedness and creativity in the field of mathematics were explained by many researchers as follows (Krutetskii, 1976; Sisk, 1987).

Can solve difficult problems that peers cannot; uses different methods for solving the same problem; performs unusual mathematical operations; focuses on application, analysis, synthesis and evaluation; solves the problem in a short time; can integrate mathematics into other categories; establishes a relationship between transactions that seem unrelated; They can think logically in the fields of quantitative or spatial relations, number and letter symbols, think with symbols of mathematics, generalize mathematical relations and operations in a fast and broad sense. gifted individual of the Turkish Ministry of National Education; It defines people with an IQ score of 130 and above, determined by experts who perform at a higher level than their peers in intelligence, creativity, leadership capacity or special fields (MEB, 2012).

Correctly educating gifted individuals is for the benefit of both the gifted individual and the society (Dönmez, 2001; Çağlar, 1972; Altıntaş, 2009). Gifted children in mathematics have the potential to become leaders and problem

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solvers of the future (NCTM, 1995). Students with these potentials need special education. Accelerated, enriched and technology-integrated programs in mathematics education should be offered to these students. At this point, the most important task falls to the teachers who will implement these programs.

Attitude; It is defined as people's positive or negative feelings about any object, person or subject (Petty & Cacioppo, 1996). Attitude is characterized as a psychological variable that is seen as an important predictor of behavior with its cognitive, affective and behavioral dimensions. Attitude includes a tendency towards an attitude object, being against or for that attitude object (Çakır, Kan, & Sünbül, 2006). their attitudes towards it. Teachers' attitudes towards the profession play a significant role in their students' personality development, the quality of teacher-student relations and the provision of learning by reflecting on their behaviors and classroom atmosphere (Semerci & Semerci, 2004). The attitudes of prospective primary mathematics teachers towards the education of gifted students are their positive or negative thoughts about the education of gifted students. The attitudes of teachers, who undertake the most important task in helping gifted people receive the education they need and be beneficial to themselves and the society, are of great importance. Teachers' attitudes affect their behavior in the classroom. The attitudes of the teachers who will provide the education needed by the gifted can affect the success of the gifted individual.

According to Bandura (1997), self-efficacy is a quality that is effective in the formation of behaviors and is defined as "the individual's self-judgment about his capacity to organize and successfully perform the necessary activities to show a certain performance". The self-efficacy belief of prospective teachers regarding the education of gifted students can be defined as their self-efficacy belief in providing the education they need to gifted students. Goddard, Hoy, and Woolfolk-Hoy (2004) stated that teacher self-efficacy is a question of a teacher's "can I plan and implement the thoughts and actions necessary to fulfill my duties?" They express it as the answer to the question (cited by Üstüner, Demirtaş, Cömert, & Özer, 2009). In some studies, teacher self-efficacy and learning products that occur in students (Caprara et al. 2006; Gibson and Dembo, 1984; Midgley et al. 1989; Woolfolk et al. 1990; Ross, 1992; Cheung and Cheng, 1997; Goddard et al. 2000) (cited by Üstüner, Demirtaş, Cömert, & Özer, 2009). Teachers with high self-efficacy perceptions take more responsibility by spending more time and effort on their students in order to provide a positive classroom environment and determine the needs of the students (Ülper & Bağcı, 2012). Teachers' self-efficacy is a factor that can be effective in students' attitudes towards the course and their learning-teaching situations (Uysal & Kösemen, 2013). Self-efficacy is a situation-specific concept and individuals' self-efficacy beliefs have a motivating role in their cognitive systems. Having a high perception of self-efficacy contributes to people's interest in activities and putting more effort into activities, which in turn increases success and happiness in many ways (Ülper & Bağcı, 2012). When examined in this context, the fact that the perception of self-efficacy is important for the teaching profession (Demirhan et al. 2016) and the high perception of self-efficacy regarding the education of the gifted can make the educational environments of the gifted more productive and provide more effective learning.

Teachers play the most important role in identifying children who are superior in terms of mathematical ability and in getting the education they need. Before graduating, teachers are expected to be equipped to meet the needs of students. Positive and high teachers' attitudes and self-efficacy beliefs contribute to effective learning in the classroom environment. From this point of view, the aim of this study is to examine whether the attitudes and self-efficacy beliefs of prospective primary mathematics teachers towards the education of gifted students differ according to their willingness to work at SAC, having received an education about gifted students, and knowing a gifted individual in their environment.

Problem of Research

When the attitudes and self-efficacy beliefs of prospective primary mathematics teachers towards the education of gifted students differ according to their willingness to work at SAC, having received an education about gifted students, and knowing a gifted individual in their environment, do they differ?

Sub Problems:

- Do prospective primary mathematics teachers' attitudes towards the education of the gifted differ depending on whether they have taken a course on the education of the gifted before or not?
- Do prospective primary mathematics teachers' attitudes towards the education of gifted students differ according to whether they want to work at SAC after graduation?
- Do prospective primary mathematics teachers' attitudes towards the education of gifted students differ according to whether there is an individual with a diagnosis of giftedness in their environment?

- Do prospective primary mathematics teachers' self-efficacy perceptions regarding the education of the gifted differ depending on whether they have taken a course on the education of the gifted before or not?
- Do prospective primary mathematics teachers' self-efficacy perceptions regarding the education of gifted students differ according to whether they want to work at SAC after graduation?
- Do prospective primary mathematics teachers' self-efficacy perceptions regarding the education of gifted students differ according to whether there is an individual who has been diagnosed as gifted or not?

Hypotheses of the Study

H_0: Attitudes and self-efficacy beliefs of prospective primary mathematics teachers towards the education of gifted students do not differ according to their willingness to work at SAC, having received education about gifted students, and knowing a gifted individual in their environment.

H1: Attitudes and self-efficacy beliefs of prospective primary mathematics teachers towards the education of gifted students differ according to their willingness to work at SAC, having received an education about gifted students, and knowing a gifted individual in their environment.

Variables of the Study

Willingness to Work in SaC: This variable is the independent variable, and the prospective primary mathematics teachers were asked to work in SaC after graduation. Two categorical answers are expected, "Yes" or "No". Science and Art Centers (SaC) are state-affiliated institutions in Turkey where gifted students receive supportive special education in addition to their formal education.

Receiving a Gifted Education: This variable is the independent variable, and it is seen that prospective teachers have attended a gifted lecture, conference, training, panel, etc. before. He asks them to join. Two categorical answers are expected: "Yes" or "No".

Recognizing a Gifted Individual: This variable is an independent variable. It questions whether the prospective primary mathematics teachers have previously been diagnosed as gifted in their family or surroundings. Pre-service teachers can answer this question in two categories: "Yes" or "No".

Attitude towards the Education of the Gifted: This variable is the dependent variable and will be examined in terms of independent variables. Attitude; It is defined as people's positive or negative feelings about any object, person or subject (Petty & Cacioppo, 1996). In this study, pre-service teachers' attitudes towards the education of the gifted will be measured with the "Attitude Scale towards the Education of the Gifted" developed by Gagne and adapted into Turkish by Tortop.

Self-Efficacy Belief in Education of the Gifted: This variable is the dependent variable and will be examined in terms of independent variables. Self-efficacy perception is the belief that one has the necessary skills to do a job (Bandura, 1997). The self-efficacy belief of the prospective teachers regarding the education of the gifted is the belief of self-efficacy in providing the education that the gifted need. This variable will be measured with the "Self-Efficacy Scale for Gifted Education" developed by Tortop (2014).

Method

Research Model

This research was designed as a causal comparison study to examine the differentiation of attitudes towards the education of gifted and self-efficacy beliefs according to various variables.

Participants

The sample of the study was reached with the appropriate sampling method. In the 2016-2017 academic year, 218 students studying in the Primary Education Mathematics Teaching Program of the Faculty of Education at a university in Eastern Anatolia, were studied where the researcher works. Before applying the data collection tools, the students were asked to fill out the "Volunteer Participant Form".

Data Collection Tools

In the research, "Personal Information Form", "Self-Efficacy Scale Regarding Gifted Education" developed by Tortop (2014) for teachers and "Attitude Scale Regarding Gifted Education" adapted into Turkish by Tortop (2014) were used.

Personal Information Form

The questions of the pre-service teachers were asked about their gender, grade level, the type of high school they graduated from, whether they had attended a course or activity related to the gifted before, their willingness to work in SAC (Science and Art Center) after graduation, and whether there was a gifted individual in their environment.

Self-Efficacy Scale Regarding Gifted Education

The first draft was a 30-item scale. The draft was sent to expert opinion for readability and content validity control. The draft was revised around expert opinion and the items were rearranged. Thus, 26 items remained in the final version of the scale. It is a 5-point Likert type scale. The validity and reliability research was carried out with 94 teachers (five) in the Turkish Science and Art Centers in the fall semester of the 2013-2014 academic year, and exploratory factor analysis was performed. For sample adequacy, Kaiser-Mayer Olkin (KMO) was calculated and Barlett sphericity test was performed. The KMO coefficient was found to be .82. Barlett' test of sphericity was significant ($p<0.05$).

This scale consists of 6 factors. Items 1, 2, 3 are in the 1st factor; Items 4, 5, 6, 7 are in the 2nd factor; 8, 9, 10 items in the 3rd factor, 11, 12, 13, 14, 15, 16, 17 items in the 4th factor; Items 18, 19, 20, 21, 22, 23 are in the 5th factor; Items 24, 25, 26 are included in the 6th factor. Internal consistency coefficient for each sub-dimension, respectively; 0.86, 0.93, 0.77, 0.91, 0.94 and 0.94 were found and the Cronbach alpha coefficient was calculated as 0.90.

Item Examples:

Factor 1: Academic Competence Dimension: Item 1. I have the necessary academic knowledge about the education of gifted students.

Factor 2: Mentoring (Counseling) Competence Dimension: Item 4. I can provide necessary counseling for gifted students in their individual studies.

Factor 3: Responsibility Dimension: Item 8. Teachers are responsible for meeting the special education needs of gifted students.

Factor 4: Appropriate Personality Trait Competency Dimension: Item 11. I can be patient enough in the education of gifted students.

Factor 5: Encouraging Creativity Dimension: Item 18. I can be tolerant of gifted students' mistakes.

Factor 6: Instructional Planning Competence Dimension: Item 24. I can develop/prepare course activities that can be used in the education of gifted students.

Attitude Scale Towards Gifted Education (Short Revised Form)

It was first developed by Gagne and Nadeau (1985) for parents and teachers. It was adapted into Turkish by Tortop (2012). A validity and reliability study was conducted with 347 teachers from different branches and seniority. It is a 34-item scale consisting of 6 sub-dimensions. It is a 5-point Likert type scale. The higher the score on the scale, the higher the attitude towards the education of the gifted. Kronbach's alpha coefficient was found to be .69. Later, Tortop (2014) conducted a validity and reliability study again; shortened and revised this scale. For language validity, opinions were received from academics who are experts in the subject and who speak English well, and arrangements were made in line with their suggestions. For construct validity, item analysis was performed; It was reduced to 3 sub-dimensions and 14 items. Items 5,6,7,8,9,13,14 in the "Needs of the Gifted and Support Dimension"; There are 2,3,12 items in the "Dimension of Opposing Special Services for the Gifted" and 1,4,10,11 items in the "Dimension of Creating Special Talent Classes".

In addition, the Cronbach's alpha coefficient increased to .801 in the final version of the scale. It was found as 0.724 in the "Needs and Support Dimension of the Gifted", 0.614 in the Dimension of Opposing Special Services for the Gifted, and 0.749 in the Dimension of Creating Special Talent Classes. The final version of the scale was used in our study.

Item Samples;

Factor1:"Needs and Support Dimension of the Gifted": Item 5: "Gifted children are often bored at school because their educational needs are not adequately met."

Factor 2: "The Dimension of Opposition to Special Services for the Gifted: Item 2: "Special programs for gifted students are objectionable because they will create elitism."

Factor 3: "The Dimension of Creating Special Ability Classes": Item 1: The best way to meet the educational needs of gifted students is to put them in special classes."

Data Collection Process

The scales were administered by the researcher in the classroom and each scale lasted approximately 10-15 minutes. Data collection was done in one go.

Data Analysis

"1" for wanting to work at SaC after graduation; "0" for not wanting to; "1" not participating in a study on giftedness before; "0"; recognizing a gifted individual was coded as "1" and not being coded as "0". The scales are in a 5-point likert structure. In order to test the suitability of the data for analysis, first of all, the normality of the data was examined. Skewnes and Kurtosis values of the scales were examined (Skewness value for Attitude scale: -.013 Kurtosis value: -.493 ; Skewness value for Selferness scale: .069 Kurtosis value: -.130) and normality assumptions were provided. For this reason, t-test and one-way ANOVA were used in group comparisons. The analysis of the data was done with SPSS 20 package program and the significance level was taken as $p<0.05$.

Results

Descriptive Statistics on the Distribution of the Sample by Demographic Information and Dependent Variables

In Table.1, the distribution of the sample according to gender of the primary education mathematics prospective teachers included in the sample is given.

Table 1.

Sample Distribution by Gender

		Frequency	Percent
Gender	Female	164	75,2
	Male	54	24,8
	Total	218	100,0

According to the table, 218 prospective primary mathematics teachers studying at İnönü University in the 2016-2017 academic year were studied. Of the 218 prospective teachers, 164 (75.2%) were female and 54 (24.8%) were male.

In Table 2, the distribution of the sample is given according to the types of high schools from which the prospective primary mathematics teachers included in the sample graduated.

Table 2.

Sample Distribution by Type of High School Graduated from

		Frequency	Percent
School Type	General high school	45	20,6
	Anatolian High School	105	48,2
	Science High School	4	1,8
	Anatolian Teacher High School	59	27,1
	Others	5	2,3
	Total	218	100,0

According to the table, out of 218 prospective primary mathematics teachers studying at İnönü University in the 2016-2017 academic year, 45 (20.6%) were from Plain High School, 105 (48.2%) from Anatolian High School, 4 (1.8%) from Science High School, 59 (% 27.1) of them graduated from Anatolian Teacher High School and 5 (2.3%) of them graduated from high schools that do not fall into any of these categories.

In Table 3, the distribution of the sample according to the grade level of the prospective primary mathematics teachers included in the sample in the 2016-2017 academic year is given.

Table 3.
Distribution of Prospective Teachers by Grade Levels

	Frequency	Percent
1. Year	60	27,5
2. Year	37	17,0
3. Year	60	27,5
4. Year	56	25,7
Others	5	2,3
Total	218	100,0

According to the table, 60 (27.5%) of the 218 prospective primary mathematics teachers studying at İnönü University in the 2016-2017 academic year are in the 1st grade, 37 (17.0%) are in the 2nd grade, and 60 (27.5%) are in the 3rd grade. class, 56 (25.7%) are in the 4th grade, and 5 (2.3%) are in the other category.
In Table.4, the distribution of primary education mathematics prospective teachers included in the sample according to their desire to work in SAC after graduation is given.

Table 4.
Distribution of Pre-service Teachers according to Their Willingness to Work at SaC After Graduation

	Frequency	Percent
Yes	148	67,9
No	70	32,1
Total	218	100,0

According to the table, 148 (67.9%) of the 218 prospective primary mathematics teachers studying at İnönü University in the 2016-2017 academic year want to work in SaC after graduation, while 70 (32.1%) of them do not want to work in SaC.

Prospective primary mathematics teachers included in the sample in Table.5 had previously attended a training, lecture, symposium, etc. on gifted students. distribution according to their participation status is given.

Table 5.
Sample Distribution According to the Status of Attending a Training on Gifted and Talented

	Frequency	Percent
Yes	72	33,0
No	146	67,0
Total	218	100,0

According to the table, 72 (33.0%) of the 218 prospective primary mathematics teachers studying at İnönü University in the 2016-2017 academic year had taken a course on giftedness before, while 146 (67.0%) of them did not take a course on the gifted.

In Table 6, the distribution of primary education mathematics prospective teachers included in the sample is given according to their status of not being a gifted individual in their environment.

Table 6.
Sample Distribution According to the Status of Individuals Diagnosed as Gifted

	Frequency	Percent
Yes	49	22,5
No	169	77,5
Total	218	100,0

According to the table, 49 (22.5%) of the 218 prospective primary mathematics teachers studying at İnönü University in the 2016-2017 academic year had an individual who was diagnosed as gifted in their environment or family, while 169 (77.5%) of them knew gifted in their environment or family. There is no individual diagnosed.

The Results of the Analysis Conducted to Examine Pre-service Teachers' Attitudes Towards Gifted Education and Self-Efficacy Beliefs According to Independent Variables

The Analysis of the Change in the Attitudes and Self-Efficacy Beliefs of Prospective Primary Mathematics Teachers Towards the Education of the Gifted According to their Willingness to Work in SAC after Graduation

Table 7 shows the t-test results of prospective primary mathematics teachers in the study group, whether their attitudes towards the education of gifted students and their self-efficacy beliefs differ significantly depending on whether they want to work in SAC when they graduate.

Table 7.

T-Test Results of Examining the Attitude and Self-Efficacy of Pre-service Teachers to Their Willingness to Work at SaC

		N	*X*	*SS*	*Sd*	*t*	*P*
Attitude	yes	148	3,5861	,79947	216	1,149	,252
	no	70	3,4571	,71598			
Self-efficacy	yes	148	2,8615	,72567	216	3,712	,000
	no	70	2,4571	,80191			

The attitudes of the prospective primary mathematics teachers participating in the study towards gifted education do not show a significant difference according to the variable of willingness to work in SAC after graduation ($t_{(216)}$=1.149, p>0.05). However, primary education mathematics prospective teachers' self-efficacy beliefs regarding gifted education show a significant difference in favor of those who want to work at SAC after graduation, according to the variable of their willingness to work in SAC after graduation ($t_{(216)}$=3,712, p<0.05).

The Analysis of the Change of Primary Education Mathematics Prospective Teachers' Attitudes and Self-Efficacy Beliefs Towards Gifted Education According to Whether They Have Taken a Course About Giftedness

The attitudes of the prospective primary mathematics teachers in the study group towards the education of gifted students and their self-efficacy beliefs before a lecture, education, symposium, etc. related to the gifted. The t-test results regarding whether there is a significant difference according to whether they agree or not are given in Table 8.

Table 8.

T-Test Results of Examining Attitudes and Self-Efficacy of Prospective Teachers According to Having received Education on Giftedness

		N	*X*	*SS*	*Sd*	*t*	*p*
Attitude	yes	72	3,5833	,80053	216	,516	,606
	no	146	3,5256	,76320			
Self-efficacy	yes	72	3,0306	,89214	216	,711	,478
	no	146	2,6450	,71422			

Attitudes of the prospective primary mathematics teachers participating in the study towards gifted education have previously been studied in a lecture, training, symposium, etc. related to the gifted. it does not show a significant difference according to whether they agree or not ($t_{(216)}$=,516 p>0.05). On the other hand, prospective primary mathematics teachers' self-efficacy beliefs regarding gifted education had previously been studied in a lecture, training, symposium, etc. about giftedness. it does not show a significant difference according to whether they agree or not ($t_{(216)}$=,711 p>0.05).

The Analysis of the Changes in the Attitudes and Self-Efficacy Beliefs of Prospective Primary Mathematics Teachers Towards the Education of the Gifted According to the Recognition of an Individual Diagnosed as Gifted in Their Environment or Family

Table 9 shows the t-test results of prospective primary mathematics teachers in the study group whether their attitudes towards the education of gifted students and their self-efficacy beliefs differ significantly depending on whether they know a gifted individual in their family or environment.

Table 9.
T-Test Results of Examining the Attitudes and Self-Efficacy of Prospective Teachers According to Their Recognition of a Gifted Individual

		N	*X*	*SS*	*Sd*	*t*	*p*
Attitude	yes	49	3,4694	,91520	66,700	-,772	,441
	no	169	3,5665	,73012			
Self-efficacy	yes	49	3,0306	,89214	216	3,138	,002
	no	169	2,6450	,71422			

The attitudes of the prospective primary mathematics teachers participating in the study towards gifted education do not show a significant difference according to whether they know a gifted individual in their family or environment ($t_{(66,700)}$=-772, p>0.05). On the other hand, prospective primary mathematics teachers' self-efficacy beliefs regarding gifted education show a significant difference in favor of those who recognize a gifted individual in their families or circles ($t_{(216)}$=3,138 , p<0.05).

Analysis of the Change of Prospective Primary Mathematics Teachers' Attitudes and Self-Efficacy Beliefs towards the Education of the Gifted According to the Demographic Information of the Candidate Teachers

Table 10 shows the t-test results regarding whether the attitudes and self-efficacy beliefs of the prospective primary mathematics teachers in the study group regarding the education of gifted students differ significantly by gender.

Table 10.
Attitude and Self-Efficacy Analysis T-Test Results by Gender

		N	*X*	*SS*	*Sd*	*t*	*p*
Attitude	yes	164	3,5671	,78624	216	,743	,458
	no	54	3,4767	,74002			
Self-efficacy	yes	164	2,6646	,74123	216	-2,253	,025
	no	54	2,9352	,83579			

The attitudes of the prospective primary mathematics teachers participating in the study towards gifted education do not show a significant difference according to gender ($t_{(216)}$=,743, p>0.05). On the other hand, prospective primary mathematics teachers' self-efficacy beliefs regarding gifted education show a significant difference in favor of males according to gender ($t_{(216)}$= -2.253, p<0.05).

A one-way ANOVA was conducted to determine whether the attitudes and self-efficacy beliefs of the prospective primary mathematics teachers in the study group towards the education of gifted students differ significantly according to the type of high school they graduated from. Table 11 provides descriptive statistics for this analysis.

Table 11.
Descriptive Statistics on the Type of High School Graduated From

		N	*X*	*SS*
Attitude	General high school	45	3,4889	,85605
	Anatolian High School	105	3,5928	,75733
	Science High School	4	3,5000	1,08012
	Anatolian Teacher High School	59	3,5169	,75410
	Others	5	3,4000	,54772
	Total	218	3,5447	,77435
Self-efficacy	General high school	45	2,8556	,77329
	Anatolian High School	105	2,7619	,76301
	Science High School	4	2,1250	,47871
	Anatolian Teacher High School	59	2,6186	,78421
	Others	5	2,8000	,90830
	Total	218	2,7317	,77267

According to the information in Table 11, when the attitude point averages of the prospective primary mathematics teachers according to the type of high school they graduated from are examined, it is seen that there is not much

difference between the averages while the highest average belongs to the Anatolian high school graduates. Likewise, when self-efficacy beliefs are examined, it can be said that although the highest average belongs to high school graduates, there is no big difference between the averages. Whether the current difference was statistically significant or not was examined with one-way ANOVA. Table 12 shows the results of one-way ANOVA on whether the attitudes and self-efficacy beliefs of prospective teachers differ according to the type of high school they graduated from.

Table 12.
One-Way ANOVA Results for the Variable of High School Graduated

		Sum of Squares	Sd	Mean Squares	F	p
Attitude	Between Groups	,541	4	,135	,222	,926
	Within Groups	129,577	213	,608		
	Total	130,118	217			
Self-efficacy	Between Groups	3,036	4	,759	1,278	,280
	Within Groups	126,516	213	,594		
	Total	129,552	217			

According to the information in Table 12, the attitude point averages of the prospective teachers do not show a significant difference according to the type of high school they graduated from ($F_{(4, 213)}$=,222, p>0.05). Similarly, self-efficacy score averages do not show a significant difference according to the type of high school graduated ($F_{(4,213)}$=1,278, p>0.05). According to this finding, it was found that the prospective primary mathematics teachers' attitudes towards the education of gifted students and their self-efficacy beliefs did not differ according to the type of high school they graduated from.

A one-way ANOVA was conducted to determine whether the attitudes and self-efficacy beliefs of the prospective primary mathematics teachers in the study group towards the education of gifted students differed significantly according to the grade level. Table 13 provides descriptive statistics for this analysis.

Table 13.
Descriptive Statistics Regarding Grade Level

	Grade	*N*	*X*	*SS*
Attitude	1.year	60	3,4750	,74461
	2. year	37	3,5811	,82085
	3. year	60	3,5791	,83543
	4. year	56	3,5357	,74381
	others	5	3,8000	,44721
	Total	218	3,5447	,77435
Self-efficacy	1. year	60	2,7500	,70410
	2. year	37	3,0135	,85380
	3. year	60	2,5750	,71203
	4. year	56	2,7143	,83043
	others	5	2,5000	,61237
	Total	218	2,7317	,77267

According to the information in Table 13, when the attitude and score averages of the prospective primary mathematics teachers according to their grade levels are examined, it is seen that while the highest average belongs to the other class level category, there are no big differences between the averages. Likewise, when self-efficacy beliefs are examined, it can be said that although the highest average belongs to the 2nd grade level, there is no big difference between the averages. Whether the current difference was statistically significant or not was examined with one-way ANOVA. Table 14 shows the results of one-way ANOVA on whether the attitudes and self-efficacy beliefs of pre-service teachers differ according to grade level.

Table 14.
ANOVA Results for Grade Level Variable

		Sum of Squares	Sd	Mean Squares	F	p
Attitude	Between Groups	,742	4	,185	,305	,874
	Within Groups	129,377	213	,607		
	Total	130,118	217			
Self-efficacy	Between Groups	4,717	4	1,179	2,012	,094
	Within Groups	124,834	213	,586		
	Total	129,552	217			

According to the information in Table 14, the attitude point averages of the prospective teachers do not show a significant difference according to the grade level ($F_{(4,213)}$=,305, p>0.05). Similarly, self-efficacy mean scores do not show a significant difference according to grade level ($F_{(4,213)}$=2.012 p>0.05). According to this finding, it was found that the prospective primary mathematics teachers' attitudes towards the education of gifted students and their self-efficacy beliefs did not differ according to the grade level.

Discussion and Conclusion

In the study, the attitudes of the prospective primary mathematics teachers towards the education of the gifted and their self-efficacy beliefs were determined by gender, class level, the type of high school they graduated from, their participation in an education about gifted people, whether they would prefer to work in SaC in the future, and whether they were a gifted individual in their environment. It was investigated whether it differs according to whether The most important result of this research is that prospective primary mathematics teachers' self-efficacy beliefs regarding the education of gifted students differ according to their preferences to work in SaC, their recognition of a gifted individual in their environment, and gender. Accordingly, it was determined that the self-efficacy beliefs of prospective primary mathematics teachers who preferred to work in SaC were more positive than those who did not. At the same time, it has been determined that the self-efficacy beliefs of those who know a gifted individual in their environment are more positive than those who do not know a gifted individual in their environment, and the self-efficacy beliefs of male prospective teachers are more positive. However, according to other findings, prospective primary mathematics teachers' attitudes towards the education of gifted students are significantly different according to their gender, whether they participate in an activity related to the education of gifted individuals, their willingness to work in SaC, their recognition of a gifted individual, their grade level and the type of high school they graduated from. found no difference. At the same time, according to other findings, it was found that the prospective primary mathematics teachers' self-efficacy beliefs about the education of gifted students did not show a significant difference according to their gender, whether they participated in an activity related to the education of gifted individuals, their grade level and the type of high school they graduated from.

Demirhan et al. (2016) examined the attitudes of prospective classroom teachers towards the education of gifted students. According to the results of the study, the attitudes of pre-service teachers who want to work in Science and Art Centers are considerably higher than those who do not. This point contradicts our research. In addition, they could not detect any differentiation according to gender, class level, participation in an education about gifted people. In this respect, it shows parallelism with our research. Donerlson (2008) examined the difference between the attitudes of teachers who received training on gifted education and those who did not receive special education on gifted education, and determined that the attitudes of teachers who received training on this subject were higher, which contradicts our research. Tortop and Kunt (2013) examined the attitudes of teachers from different branches towards the education of gifted students and found that they did not differ according to gender, age and branch, this is in line with our research.

Erdogan et al. (2016) examined the self-efficacy beliefs of primary education mathematics prospective teachers towards the education of gifted students. As a result of the research, it was stated that the self-efficacy beliefs of the prospective teachers who were studying in the last year, who attended a training on the gifted and who wanted to work in Science and Art Centers were higher; Although it contradicts our study in terms of the differentiation of self-efficacy beliefs of the pre-service teachers participating in the training, the differentiation according to the desire to work at SaC is parallel to our study. Tortop (2014) developed a scale for teachers to determine the self-efficacy beliefs

for the education of gifted students and determined that the teachers who participated in a training on the education of the gifted had higher self-efficacy beliefs, which contradicts our research at this point.

Recommendations for Further Study

The validity and reliability studies of the scales used in this study for primary school mathematics teachers can be carried out, the analysis can be repeated and the results can be re-examined.

Recommendations for Applicants

In line with the findings obtained from this research, SaC can be introduced to prospective teachers. In addition, programs can be organized to enable them to meet gifted children.

Limitations of Study

It is limited to students studying in the primary education mathematics teaching program of the faculty of education at a university in Eastern Anatolia in the 2016-2017 academic year.

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