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Original Research Article

Examining the Effectiveness of the In-service Training Program for the Education of the Academically Gifted students in Turkey: A Case Study

ABSTRACT: In this study, examining the effectiveness of in-service training for gifted education has been conducted. In the study, 30 Classroom, Science, Mathematics and Preschool teachers working at schools in different cities of Turkey, took part as volunteer participants. Moreover, some criteria were specified for determining the participants. In this in-service training, teachers have received theoretical and practical training in the academicians who study on gifted education. In this process, they have designed units in groups according to the Education Program for Gifted Student Bridge with University (EPGBU) curriculum. The research has been designed as a case-study research which is one of the qualitative research models. In the study, some data tools (scales, interview form and the documents) were utilized Two of data collection tools were developed by research. These were Science Fair Mentorship Self-efficacy Scale for Teachers (SFMSST) and Gifted Education Self-efficacy Scale for Teachers (GESST). As a result of a one-week in-service training, it has been determined that the teachers' perception of self-efficacy for scientific research mentorship and gifted education increased.

Key words: Gifted education, self-efficacy, science fair mentorship self-efficacy scale, gifted education self-efficacy scale, EPGBU.

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INTRODUCTION

The fact that teachers are individuals of the society in which they live, can put forward such a case that teachers can be stained of the colors of their societies' view of the giftedness and gifted education. Teachers are really important components in gifted education. Their attitudes towards gifted education are effective in contributing to the gifted education (Lassig, 2003; McCoach & Siegle, 2007). On the other hand, teachers still have some beliefs and misconceptions about giftedness and gifted education. Some of them are; every child is gifted in fact, education of the gifted is not democratic and gifted education contains an elitist approach (Gross, 1997, 1999; Gallagher et al., 1995). The fact that teachers also have the neutral or ambivalent attitudes towards the education of the gifted; it may be an indication that teachers are quite confused about it (Tortop & Kunt, 2013).

It is observed that a few studies were conducted on the teachers' effectiveness and adequacy of gifted education. Thus, this situation leads to the expressing frequent expression of the problems relating to the gifted education in society. Also, because it is the field of special education, when we consider gifted education, to handle the problem in the focus of "teacher quality" can solve it on a large scale. The studies show that teachers have significantly a great influence on students' achievement and education (Rowe, 2007). Teacher quality can be handled in two dimensions; one of them is personal characteristics of teachers and the other is teacher's ability to use appropriate instructional strategies (Van TasselBaska & Jhonsen, 2007). In gifted education, teachers aren't recommended a single or a particular strategy. To determine the appropriate strategy of many teaching strategies are also among the teacher's competences. Namely, an effective teacher in gifted education should have the knowledge about giftedness and the nature of learning of the gifted and develop a positive attitude towards the gifted education.

The lack of research on what features an effective teacher of the gifted should have, leads to a delay in the emergence of consensus in this field. In this field, there is a need to do more experimental research studies. However, opinions of gifted students about what kind of teachers or teacher preferences they want can focus on one point. In the study, Sahin and Tortop (2013) have shown that the characteristics' of teachers, whom gifted students prefer, occur in two sub-dimensions. These studies have revealed the following features (see, Table 1);

Table 1. Gifted students' teacher references scale (Sahin & Tortop, 2013)

The Personality Traits of the Teacher of Gifted Students
Being tolerant
Being a patient listener
Being interested in the new developments in his/ her field
Behaving carefully in unexpected situations
Being trusted by others
Being active in lessons
Enjoying the education of their students
Having a sense of humor
Having a good general knowledge
Being motivated by their students' education
Professional Qualifications of the Teachers of Gifted Students
Being able to lead his/ her students to find extraordinary solutions to the problems
Giving opportunity to students' self-evaluation
Being able to include the student in the education process
Being able to use different methods in resolving problems
Cooperating with other teachers/professionals
Knowing class management methods

In their studies, as well as personality traits, Sahin and Tortop (2013) have also revealed features related to the proficiency of teachers as shown in Table 1. In fact, many researchers agree with is that teacher's pedagogical skills are very important and central issue (Yuen & Westwood, 2004). In terms of determining the qualifications and characteristics of the teachers involved in the training of the gifted, it is obvious that further studies should be

conducted. Furthermore, before beginning to deal with the training of gifted, it will be quite helpful that teachers should answer the question "what characteristics a teacher of gifted should have".

Thanks to titled 2229 Scientific Education Activities Support Program of The Scientific and Technological Research Council of Turkey, academicians are provided financial support to train teachers. The frame of this program is described as following;

> *With the aim of contributing to students, teachers scientists/researchers in the field of Natural Sciences, Engineering and Technology, Medical Sciences, Agricultural Sciences, Social Sciences and Humanities to get scientific and current information in related fields, theoretical / practical summer / winter schools, courses, seminars and other similar scientific educational activities which are held domestically will be supported (TUBITAK-STRCT, 2014)*

Within this support, it is encouraged to do activities which improve teachers' project mentorship.

Besides, one of the educational practice quite widely recommended for gifted students, is independent study. It is also required for gifted students to gain some skills to be able to do independent studies (Shore & Delcourt, 1996; Stedtnitz & Speck, 1986; Rogers, 2007). For example, self-regulatory skills, research skills (Tortop, 2013a; Tortop & Eker, 2014; Tortop, 2014b). Moreover, in order to help students gain these skills and to mentor effectively, it will be useful that teachers should undergo training about both characteristics of gifted and how to help students gain those skills.

In this study, it is aimed to determine the effectiveness of teacher training, targeting the increasing of the capability in the independent scientific research of gifted students who are financially supported by STRCT. In this study, teachers have designed differentiated instruction units according to EPGBU (Tortop, 2013a) curriculum components which are scientific creativity, self-regulatory skills in science learning, thinking skills, history and philosophy of science.

In this study, it is sought answers to the following research problems;

- Does in-service training seminar intended for academically gifted students' education increase teachers' self-efficacy in scientific research projects mentorship?
- Does in-service training seminar intended for academically gifted students' education increase teachers' self-efficacy for the education of gifted students?
- What are the teachers' views about EPGBU?
- What are the teachers' views about applicability of differentiated curriculum designs which have been designed according to EPGBU curriculum which are scientific creativity, self-regulatory skills in science learning, thinking skills, history and philosophy of science?
- How are the differentiated instruction designs' qualitative qualities which have been done by teachers at in-service training program?

METHOD

Research Model

This research is a case study from one of the qualitative research methods. Case study research is a form of qualitative research that focused on providing a detailed account of one or more cases (Buyukozturk, 2011). In this study, the effectiveness of an in-service training program prepared for teachers was examined.

Participants

Thirty volunteer teachers' works from state or private primary and secondary schools in different cities of Turkey participated in the research. The website www.ustunyeteneklileriegitiyorum.com was used in announcing the in-service training program. The applications of the in-service training program were taken via e-mail. About 120 teachers applied to the in-service training program. Among those applications, 30 teachers were selected based on the criteria " to be Science, Math, Classroom and Pre-school teacher, not having administrative duties, preferably having post-graduated education or having post-graduate education. The teachers who participated in the research were 16 women, 14 men with their mean of age ($\bar{X}$=34.04, *SD*= 7.75) and their mean of seniority years ($\bar{X}$=11.0, *SD*=6.95). There were 13 Science Teachers, 2 Maths Teachers, 5 Preschool Teachers and 10 Classroom Teachers in the research.

Teacher In-Service Training Program

STRCT has decided to support the in-service seminars which aim at increasing teachers' proficiency levels about training of gifted students in the academic fields. The in-service

training program was held in Akcakoca Complex for Teachers in Akcakoca, Duzce between the dates 28 January and 3 February 2014.

Academicians, who have studied in the field of gifted education and have doctoral degrees, gave).

eight hours of training in a day for a week. In addition, these academicians applied theoretical and practical training relevant to their areas of expertise. Teachers have training determined in the framework of the education (see Table 2

Table 2. The in-service training program schedule for the teachers about gifted education

Hours	1st Day 28.01.2014-Tues	2nd Day 29.01.2014-Wed	3rd Day 30.01.2014-Thur	4th Day 31.01.2014-Fri	5th Day 01.02.2014-Sat	6th Day 02.02.2014 - Sun	7th Day 03.02.2014- Mon
09:00-09:45	Giftedness, Its Definition, Theories, Characteristics of the Gifted Students	Overview of the Gifted Education in the World	Effective Use of Technology in Scientific Research Projects	Social Emotional Development of the Gifted Students	Scientific Research Methods: Mistakes at the Project Report Writing	Models of the Gifted Education	Presentations of the Teachers' Unit Design(s) according to EPGBU Curriculum
10:00-10:45	Gifted Education in Turkey (SACs, MNE, 2014), EPTS (Sak, 2011), EPGBU (Tortop, 2013)	In the context of Legal Rights of Gifted Children	Effective Use of Technology in Scientific Research Projects	Motivation of Gifted Students and Scientific Research Projects	Scientific Research Methods: Mistakes at the Project Report Writing	Curriculum Models of the Gifted Education (Maker, Tomlinson, Renzulli…)	Presentations of the Teachers' Unit Design(s) according to EPGBU Curriculum
11:00-11:45	Project-Based Learning in Gifted Education and Scientific Research Mentorship	Understanding of Gifted Child	Use of Alternative Assessment Approaches in Scientific Research Projects	Counseling for the Gifted Students and their Families at Project Competitions	Scientific Research Methods: Referring and APA Style	EPGBU Curriculum Models of the Gifted Education (Maker, Tomlinson, Renzulli…)	Presentations of the Teachers' Unit Design(s) according to EPGBU Curriculum
13:00-13:45	Project Idea Finding Approaches: Driving Questions	Development of the Problem Solving Skills of Gifted Students	Difference Between Counseling and Mentorship	Creativity and Intelligence, Theories of the Creativity	Moral Development of Gifted Children	The Nurturing of Self-regulatory Skills in Science Learning at the Gifted Education	Certificate Ceremony
14:00-14:45	Project Idea Finding Approaches: Field Trips to the Research Centers	Using Problem-Based Learning in Independent Scientific Research	Effective Mentoring Practices in Independent Study	Nurturing of the Scientific Creativity with the Activities	Moral Development Theories and the Adaptation of Gifted Children (Dabrowski, Kohlberg..)	The Nurturing of Self-regulatory Skills in Science Learning at the Gifted Education	Certificate Ceremony
15:00-15:45	Project Idea Finding Approaches: Brainstorming	Project-Based Learning Activities at Scientific Research	How is Effective Mentoring in scientific research project studies done?	Nurturing of the Scientific Creativity: Presentations of group activity	Moral Development Theories and the Adaptation of Gifted Children (Dabrowski, Kohlberg..)	The nurturing of Self-regulatory Skills in Science Learning at the Gifted Education	Certificate Ceremony
17:00-17:45	Project Idea Finding Approaches: Efficient Internet Usage, Current Issues	Project-Based Learning Activities at Scientific Research: Presentations of group activity	How is Effective Mentoring in scientific research project studies done?	Nurturing of the Scientific Creativity: Presentations of group activity	Values Education and Scientific Research Ethics	The Nurturing of Self-regulatory Skills in Science Learning at the Gifted Education	
18:00-18:45	Group Activity: Unit Design according to EPGBU Curriculum	Group Activity: Unit Design according to EPGBU Curriculum	Group Activity: Unit Design according to EPGBU Curriculum	Group Activity: Unit Design according to EPGBU Curriculum	Group Activity: Unit Design according to EPGBU Curriculum	Group Activity: Unit Design according to EPGBU Curriculum	
20:00-22:30			Movie :Little Man Tate		Movie : Vitus		

During this in-service training program, teachers watched two films in order to understand the phenomenon of giftedness deeply. Those films were Little Man Tate and Vitus. The in-service training was given in accordance with the specified time. Between 18.00 and 18.45, by having given the information about EPGBU curriculum model (Tortop, 2013a) designed for gifted education in academic field, unit design work was done in the groups in the light of outcomes about scientific creativity, thinking skills, scientific research and process skills, self-regulation skills, history and philosophy of science, which are the components of EPGBU curriculum. On the last day of the in-service training program, unit designs were presented by teachers.

Data Collection Tools

Multiple methods of data collection are often used in case study research (e.g., questionnaires, interviews, observation, documents). The case study research should provide a rich (i.e., alive, fresh and detailed) and holistic (i.e., describes the whole and its parts) description of the case and its context. The data in this study were collected with the help of a semi-structured interview protocol, document analysis (teachers' differentiated instruction designs), Science Fair Mentorship Self-efficacy Scale for Teachers (SFMSST) and Gifted Education Self-efficacy Scale for Teachers (GESST).

In this research, two data collection tools were developed by the researcher according to Bandura's (2001) guide book. Those are;

Science Fair Mentorship Self-efficacy Scale for Teachers (SFMSST): The scale was used for the determination of self-efficacy perceptions for mentoring at science fair or students' independent research project mentorship, in case the teachers participated in the in-service training, could do scientific research projects for academically gifted students.

Gifted Education Self-efficacy Scale for Teachers (GESST): The scale was developed to determine teachers' self-efficacy beliefs through the gifted education.

Study 1. Science Fair Mentorship Self-efficacy Scale for Teachers (SFMSST)

The stages were followed at process of developing teachers' self-efficacy belief scale towards the scientific research project mentorship and science fair mentorship. Firstly, the author made a comprehensive and extensive review of the related literature and of the existing surveys and solicited options from teachers' experiences in science fair mentorship. A number of studies on the science fair and science fair mentorship were examined (Grote, 1995, 1996; McDonough, 1995; Cook, 2003; Abernathy, & Vineyard, 2001; Yayla & Uzun, 2008; Yasar, & Baker, 2003; Fisanick, 2010; Tortop, 2010, 2013b, 2013c, 2013d).

The initial draft consisted of 19 items. The draft was sent to the experts in educational psychology and to the researchers who frequently studied on the science fair, project based learning and science education in order to check in the respect of content relevance, readability, and consistency. The draft was revised by author, and each items was regulated their views. The final instrument consisted of 19 positive items. This scale is a 5-point Likert type scale which rated as 1 strongly disagree, 2 disagree, 3 undecided, 4 agree, 5 strongly agree. The higher score on scale indicated more self-efficacy belief level towards scientific research projects mentorship.

Sample

The study was carried out with 101 teachers working in the A city of Turkey in the spring term of the academic year of 2012-2013. In scale-developing studies, sample space should be 2-5, preferably 10 fold of questionnaire item number (Klien, 1994; Buyukozturk, 2007).

Certain criteria were determined by the researcher for the selection of the teachers who would participate in the study. Firstly, the fields (branches) related to the science fair and project-based learning model in the curriculum were selected. The participants were Science and Mathematics teachers at secondary schools and those of mathematics, geography, history, physics, chemistry and biology at high schools. The second criterion was that these teachers previously joined a science fair as a science fair mentor.

There were 44 female teachers and 57 male teachers. As for the teaching experiences of the teachers, it was 3.0% (1-5 years), 14.9% (6-10 years), 27.8% (10-15 years), 17.8% (16-20 years), 8.9% (21-25 years), 4.0% (26-30 years) and 1.0 % (30 years or over).

Validity

The final version of the instrument was administrated to 101 teachers. Afterwards, exploratory factor analysis was conducted. The Kaiser-Mayer Olkin (KMO) measurement of the

sample adequacy and Barlett's test of sphericity were calculated. The KMO coefficient was found to be .82, which was higher than the critical value of 0.3 (Klien, 1994; Buyukozturk, 2007). The result of Barlett's test of sphericity statistic was significant ($p<0.05$). It seemed that factor analysis could be applied to the results of these tests. The purpose of applying factor analysis was to determine the number of separate components. Whether the test demonstrated a normal distribution or not was examined. As there was no normal distribution, the principal axis factoring analysis was used on all the data to extract the appropriate number of factors. The principal axis factoring analysis yielded four components with an eigen value greater than one (Stevens, 1996; Colakoglu & Büyükekşi, 2014). These factors explained 67.96 of total variance. The varimax rotation was administrated due to there was not any relations between subscales with one another (Colakoglu & Buyukeksi, 2014), and factor loadings for each item were examined. The items with a loading less than 0.30, those loaded on more than one factor or those whose communality values decreased excessively were excluded (Klien, 1994; Buyukozturk, 2007). At the end of study, the factor analysis revealed four independent factor structures. The factor structures and loading of 16 items in SFMSST are given Table 1. The factor structures and loading of 16 items in SFMSST are given Table 3.

Table 3.Factor structures and loading of the 16 items in SFMSST

	Factor 1	Factor 2	Factor 3	Factor 4
Item 7. I can give my student(s) necessary support to face the challenges which they encounter while preparing projects.	.764			
Item 11. I can guide my student(s) about how they can reach information.	.707			
Item 9. I can guide my student(s) for them to be successful in project competitions.	.664			
Item 10. I can guide my student(s) for them to make effective presentations.	.650			
Item 12. I can guide my student(s) effectively for them to collaborate with institutions and organizations while preparing projects.	.592			
Item 2. I have enough knowledge about project management skills.		.858		
Item 4. I have enough knowledge about project evaluation criteria.		.673		
Item 3. I have enough knowledge about scientific research methods.		.552		
Item 1. I am academically adequate in terms of scientific process skills required for preparing projects.		.550		
Item 5. I follow academic publications related to the project-based learning.		.477		
Item 14. I can persuade my student(s) to participate in science fairs.			.906	
Item 13. I can do the necessary orientation to take my students' attention to the science fairs.			.569	
Item 15. I can orient my students to do scientific research through science fairs.			.396	
Item 17. Teachers are responsible for making students participate in science fairs which promote students' scientific research skills.				.927
Item 18. Teachers are responsible for taking students' attention to the science fairs.				.637
Item 16. Making mentorship in science fairs is one of the important responsibilities of the teachers.				.569

As can be seen in Table 3, SFMSST consisted of four factors. There were five items (with items 7, 11, 9, 10, 12) clustered as Factor 1, five items (with items 2, 4, 3, 1, 5) clustered as Factor 2, three items (with items 14, 13, 15) clustered as Factor 3, and three items (with items 17, 18, 16) clustered as Factor 4. Then, these factors were labeled as Factor 1: Guidance and Counseling Qualification, Factor 2: Academically Qualification, Factor 3:

Convincing Skills for Participation in the Science Fair, and Factor 4: Responsibility.

Reliability

Following the factor analysis, reliability analysis was conducted for each factor, and Cronbach alpha coefficients were calculated. Internal consistency coefficients were for the 16 items for each subscale 0.86, 0.78, 0.77, and 0.77, respectively, and the explained variances were found to be 37.8, 13.56, 9.43, and 7.15, respectively. Total variance of SFMSST was 67.96, and the Cronbach alpha coefficient was calculated as 0.88. Item-total statistics analysis revealed that all items were highly related ranged between 0.31 and 0.72. Correlational analysis revealed that all subscales and SFMSST were highly related ranged between 0.611 and 0.846 (Table 4).

Table 4. Correlation of SFMSST and subscales

	SFMSST	Factor 1	Factor 2	Factor 3
Factor 1	.846**			
Factor 2	.747**	.510**		
Factor 3	.789**	.610**	.426**	
Factor 4	.611*	.344**	.167	.470**

** Correlation was significant at the level of 0.01 (2-tailed).

Item analysis results demonstrated that item-total correlations ranged from 0.31 to 0.72. Independent groups t-test was performed to compare all items' means for upper 27% and lower 27% of the group points. It was found out that, there was a significant difference for all items ($p<.001$). Besides it was seen that teachers' SFMSST points were differentiated from gender variables ($t_{(99)}=-2.455$, $p<0.00$) (Table 5).

Table 5. t- Test results of teachers' SFMSST points according to gender

	N	Mean	Std. Deviation	df	t	p
Male	57	61.0877	8.4246	99	-2.455	.016
Female	44	65.0455	7.4925	96.969		

Determining for criterion validity of SFMSST, correlation with TASSF, which developed (Tortop, 2013a) to measure attitude of teachers towards the science fair, has been examined. It was found that there was a positive and significant correlation with teachers self-efficacy level of the science fair mentorship and teachers attitude towards the science fair ($r = 0.32$, $p < 0.01$).

This study was carried out to develop a scale for teachers' self-efficacy beliefs through the scientific research projects mentorship or science fair mentorship. The findings obtained from the validation studies revealed that this scale was valid. The fact that the internal consistency coefficient of the scale was found to be 0.88 which showed that the scores to be taken from the scale were consistent with each other, therefore the reliability of internal consistency was inormal level (Klien, 1994; Buyukozturk, 2007). The results for item-total statistics analysis demonstrated that the item-total correlations of the scale ranged between 0.31 and 0.72. According to research it could be said that SFMSST was a valid and reliable tool. In the light of the findings, SFMSST can be used in studies for measuring teachers' self-efficacy beliefs through the students' research mentorship or science fair mentorship. In addition, there is no scale development study carried out with teachers in related literature. In this respect, the scale developed in the present study will bridge an important gap in studies regarding the science fair and gifted student independent study mentorship.

Study 2. Gifted Education Self-efficacy Scale for Teachers (GESST)

The stages which were followed at process of developing teachers' self-efficacy belief scale towards the education of the gifted students were traced. Firstly, the author made a comprehensive and extensive review of the related literature and of the existing surveys and solicited options from teachers' experiences who work in Science and Art Center in Turkey about teachers' qualification at gifted education. A number of studies on the gifted educators' or qualification of teachers' work with the gifted students was examined (Baldwin, 1993; Sahin & Tortop, 2013; Yuen & Westwood, 2004; Van TasselBaska & Jhonsen, 2007; Bishop, 1968; Chan, 2001; Croft, 2003; Ferrell et al., 1988; Heath, 1997; Rosemarin, 2014; Mills, 2003).

The initial draft consisted of 30 items. The draft was sent to the experts in gifted education in order to check it in the respect of content relevance,

readability, and consistency. The draft was revised by author, and each item was regulated in the light on their views. The final instrument consisted of 26 positive items. This scale is a 5-point Likert type scale which rated as 1 strongly disagree, 2 disagree, 3 undecided, 4 agree, 5 strongly agree. The higher score on scale indicated more self-efficacy belief level towards the gifted education.

Sample

The study was carried out with 94 teachers working in the Science and Art Centers of Turkey (five) in the autumn term of the academic year of 2013-2014. In scale-developing studies, sample space should be 2-5, preferably 10 fold of questionnaire item number (Klien, 1994; Buyukozturk, 2007). According to this view, the number of samples was seen as sufficient.

There were 56 female teachers and 38 male teachers. As for the teaching experiences of the teachers, it was 13.8% (1-5 years), 27.7% (6-10 years), 21.3% (10-15 years), 27.7% (16-20 years), 2.1% (21-25 years), 6.4% (26-30 years) and 1.1 % (30 years or over).

Validity

The final version of the instrument was administrated to 94 teachers. Afterwards, exploratory factor analysis was conducted. The Kaiser-Mayer Olkin (KMO) measurement of sample adequacy and Barlett's test of sphericity were calculated. The KMO coefficient was found to be .82, which was higher than the critical value of 0.3 (Klien, 1994; Buyukozturk, 2007). The result of Barlett's test of sphericity statistic was significant ($p<0.05$). It seemed that factor analysis could be applied to the results of these tests. The purpose of applying factor analysis was to determine the number of separate components. Whether the test demonstrated a normal distribution or not was examined. As there was no normal distribution, the principal axis factoring analysis was used on all the data to extract the appropriate number of factors. The principal axis factoring analysis yielded four components with an eigen value greater than one (Stevens, 1996; Colakoglu & Buyukeksi, 2014). These factors explained 67.96 of total variance. The varimax rotation was administrated. So, there is any relation subscales with one another (Colakoglu & Buyukeksi, 2014), and factor loadings for each item were examined. The items with a loading less than .30, those loaded on more than one factor or those whose communality values decreased excessively were excluded (Klien, 1994; Buyukozturk, 2007). The factor structures and loading of 26 items in GESST are given Table 1. At the end of study, the factor analysis revealed four independent factor structures. The factor structures and loading of 26 items in GESST are given Table 6.

Table 6. Factor structures and loading of the 26 items in GESST

	Factor 1	Factor 2	Factor 3	Factor 4	Faktor 5	Faktor 6
Item 1. I have adequate academic knowledge about the education of gifted students.	.674					
Item 2. I can make scientific research on the education of gifted students.	.633					
Item 3. I follow academic publications about the education of gifted students.	.616					
Item 4. I can guide to gifted students for their independent studies.		.400				
Item 5. I can appropriate referral to the gifted students' individual developments.		.445				
Item 6. I can give the necessary emotional support in the education of gifted students.		.426				
Item 7. I can give effective mentoring to the gifted students in my specialty.		.504				
Item 8. Teachers are responsible for meeting the special educational needs of gifted students.			.721			
Item 9. Teachers are responsible for promoting gifted			.743			

students' cognitive and affective development.				
Item 10. Improving themselves about the education of gifted students is among the responsibilities of teachers.	.548			
Item 11. I can be patient enough during the education of the gifted students.		.432		
Item 12. I can be tolerant enough during the education of the gifted students.		.406		
Item 13. I have a sense of humor that will attract gifted students to my teaching style.		.336		
Item 14. I'm energetic.		.311		
Item 15. I have a broad cultural background.		.297		
Item 16. I can build good relationships with gifted students.		.287		
Item 17. I can make gifted students trust me.		.306		
Item 18. I can be tolerant towards students making mistakes.			.597	
Item 19. I can make students develop different perspectives against problems.			.577	
Item 20. I can promote students' development considering their special interests.			.643	
Item 21. I can motivate students to long term studies.			.588	
Item 22. I can stimulate students' curiosity.			.620	
Item 23. I can make students evaluate themselves.			.560	
Item 24. I can design activities which can be used in gifted education.				.306
Item 25. I can implement instructional activities related to the education of gifted students.				.302
Item 26. I can design differentiated instruction compatible with the general curriculum.				.374

As can be seen in Table 6, GESST consisted of six factors. There were three items (with items 1, 2, 3) clustered as Factor 1, four items with items 4, 5, 6, 7 clustered as Factor 2, three items with items 8, 9, 10 clustered as Factor 3, and seven items with items 11, 12, 13, 14, 15, 16, 17, clustered as Factor 4, six items with items 18, 19, 20, 21, 22, 23 clustered as Factor 5, three items with items 24, 25, 26 clustered as Factor 6. Then, these factors were labeled as Factor 1: Academic Qualification, Factor 2: Mentorship Qualification, Factor 3: Responsibility, Factor 4: Personality Traits, Factor 5: Creativity Fostering Qualification, and Factor 6: Instructional Planning Qualification.

To determine the criterion validity of GESST, the correlation of SFMSST with GESST has been examined. It was found that there is a positive and significant correlation with teachers' self-efficacy level of the gifted education and teachers' attitudes towards the science fair mentorship ($r = 0.76$, $p < 0.01$).

Reliability

Following the factor analysis, reliability analysis was conducted for each factor, and Cronbach alpha coefficients were used. Internal consistency coefficients for each subscale; 0.86, 0.93, 0.77, 0.91, 0.94 and 0.94, respectively, and the explained variances were found to be 37.56, 14.92, 9.39, 6.85, 5.08 and 4.30, respectively. Total variance of GESST was 78.10, and the Cronbach alpha coefficient was calculated as 0.90. Item-total statistics analysis revealed that all items were highly related ranged between 0.30 and 0.73. Correlational analysis revealed that all subscales and GESST were highly related ranged between 0.373 and 0.771 (Table 7).

Table 7. Correlation of GESST and subscales

		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	.750**					
Factor 2	.771**	.518**				
Factor 3	.373**	.162	.44			
Factor 4	.733**	.417**	.601**	.84		
Factor 5	.668**	.380**	.316**	.308**	.289**	
Factor 6	.716**	.628**	.532**	.99**	.367**	.364**

** Correlation was significant at the level of 0.01 (2-tailed).

Item analysis results indicated that item-total correlations ranged from 0.30 to 0.73. Independent groups t-test was performed to compare all items' means for upper 27% and lower 27% of the group points. It was found out, there was a significant difference for all items ($p<.001$).

This study was carried out to develop a scale for teachers' self-efficacy beliefs through the education of the academically gifted students. The findings obtained from the validation studies revealed that this scale was valid. The fact that the internal consistency coefficient of the scale was found to be 0.90 showed that the scores taken from the scale were consistent with each other; therefore the reliability of internal consistency is in normal level (Klien, 1994). The results of item-total statistics analysis demonstrated that the item-total correlations of the scale ranged between 0.30 and 0.73. According to research, it could be said that GESST was a valid and reliable tool. This study was carried out to develop scale self-efficacy beliefs through the gifted education. In the light of the findings, GESST can be used in studies for measuring teachers' perceived self-efficacy through the gifted education.

Interview Form

The interview form was prepared by researcher. By means of the interview form, it was aimed to determine the views of teachers about in-service training program, EPGBU and the applicability of the differentiated instruction designs regarding EPGBU curriculum components. For this reason, three open ended questions were prepared.

Documents Analysis

In this study, teachers' differentiated instruction unit designs which were prepared regarding EPGBU curriculum components have been evaluated in terms of quality by three experts who study gifted education. The evaluation criterion that required in gifted education was determined by researcher. The views of academicians who study gifted education were taken into account at the determination process of the evaluation criterion (Maker, 1982; Kaplan, 2009; Feldhusen et al., 1989; Sak, 2010, 2011; Tomlinson & Strickland, 2005; Tortop, 2013). Those differentiated instruction unit designs were scored ranging from 1 point for insufficient to 4 point for sufficient (1 point insufficient, 2 point partially insufficient, 3 point partially sufficient, 4 point sufficient). Besides, the views of experts about applicability of prepared unit designs according to EPGBU, and inadequacies of unit designs were obtained via interview form. Obtained data were examined according to the content analysis.

Data Analysis

Categorical content analysis was used to analyze the data obtained from interview form in this study (Miles & Huberman, 1994; Yıldırım & Simsek 2003). To determine pretest and posttest differences of the teachers' science fair mentorship self-efficacy and teachers' gifted education self-efficacy scores, SPSS was used for the analysis, frequency, Mean, t-Test.

RESULTS

In this study, the effectiveness of an in-service training program about academically gifted student education has been investigated. Since it is about the education of gifted students in the academic field, the changes in scientific research projects mentorship self-efficacy has been examined. In that regard, SFMSST was implemented to the group as pre-test and post-test. The results are shown in Table 8.

Table 8. t- Test results of teachers' SFMSST pretest-posttest scores

	N	Mean	Std. Deviation	df	t	p
Pretest	30	61.0877	8.4246	99	-2.455	.016*
Posttest	30	65.0455	7.4925			

* p<.005

As it can be seen in Table 8, a significant difference in favor of the posttest scores were found between SFMSST pretest and posttest scores ($t_{(99)}$= -2.455, p<0.05). As it is seen, while the scientific research projects mentorship self-efficacy average pretest scores of teachers is ($\bar{X}$=61.08), at the end of in-service training, the posttest score is ($\bar{X}$=65.04). This situation can be interpreted as in-service training for teachers is effective in increasing teachers' scientific research project mentorship self-efficacy.

Another research problem examined in the research is to investigate the changes in teachers' gifted education self-efficacy. In this regard, the GESST was administered to the teacher group as pre-test and post-test. The results are shown in Table 9.

Table 9. t- Test results of teachers' GESST pretest-posttest scores

	N	Mean	Std. Deviation	df	t	p
Pretest	30	97.9032	11.007	30	-7.142	.000*
Posttest	30	113.2581	11.549			

* p<.005

As it is seen in Table 9, a significant difference in favor of post test scores was found between GESST pretest and posttest scores of teachers. ($t_{(30)}$ = -7142, p <0.05). It is clear that while teachers' self-efficacy beliefs through the gifted education average pretest scores were ($\bar{X}$=97.90), at the end of in-service training, posttest scores are ($\bar{X}$=113.25). The in-service training for teachers can be interpreted to be effective in increasing gifted education self-efficacy

.

Findings from Interview

During the in-service seminars, the interviews with the teachers have been done about the effectiveness of in-service training, the applicability of the unit design based on the EPGBU curriculum components and their opinions about the EPGBU. These interviews have been presented by themes.

The Effectiveness of In-service Training

All of the teachers in the interviews stated that the in-service training has contributed to their proficiency levels about the education of gifted students in the academic field. They have also stated that the in-service training has contributed to some field such as; effective mentoring ability, revealing the pedagogical approach, and self-regulated learning. Some of the views of teachers about this issue are as follows;

> *I have learned more about the different approaches in the education of gifted students. It has been a useful and awakening training. I have had the opportunity to develop myself about the issues such as the importance of self-regulated learning in gifted, the use of driving questions, designing of problem scenarios, counseling to gifted students, history of science, scientific research methods (Teacher-35 years-Male). In the program I have attended, I think that it contributes to our level of proficiency in the education of academically gifted students (Teacher-42 years-Male).*

The Views on EPGBU

EPGBU is coordinated by Assoc. Prof. Dr. Hasan Said TORTOP, based on the mentoring approach, which supports the development of academically gifted students and the units are designed according to the curriculum differentiation and the education is given at weekends (Tortop, 2013a, 2014). Moreover, teachers have had the opportunity to recognize EPGBU which is one of the few programs in Turkey. The views of teachers on EPGBU are as follows;

> *By means of the EPGBU, I think that students can reveal their potentials better. Through EPGBU, the skills are developed and the appearances of qualified concrete products are supported (Teacher-35 years-Male). When I've participated in this in-service training, I have been informed about EPGBU which is one of the few programs in Turkey for gifted education. Gifted education in other institutions (state and private schools etc.) is carried out by giving more lessons. The needs of these students are different from*

others'. More appropriate things about their needs and interests are fulfilled in this program (EPGBU). In addition, e-mentoring has been thought out very well for the gifted students who don't have enough opportunity (Teacher-30 years-Female). When I have first heard, I have really enjoyed and it is a comprehensive and well thought-out program. The program is aware of the lacks in this field. EPGBU allows gifted children without being evaporated in the system to get the education they deserve and to be aware of their own abilities. I look forward to see the studies and the results impatiently (Teacher-38 years-Female).

The Views on Unit Designs Prepared in accordance with the EPGBU Curriculum Components

During in-service training, it has been tried to design units according to scientific creativity, thinking skills, scientific research and process skills, self-regulation skills in science learning, history and philosophy of science which are EPGBU curriculum components. Some of the opinions of the teachers about these practices are as follows;

Some studies have been very extreme. Despite, it has led to the emergence of prepared instructional designs. This shows that it supports the occurrence of interesting studies which are previously unpredictable, different. As well as there are applicable, interesting instruction designs, there are also ordinary, inapplicable and inefficient instruction designs (Teacher-30 years-Female). In the biodiversity theme, we have designed a very nice unit for the Western Black Sea Region in Turkey. We have used music as well. I think it is a unit design which is applicable for gifted. I think this kind of in-service training activities should spread throughout the country and the scientifically appropriate designs should be determined and used at schools (Teacher-32 years-Male). I can clearly say that the thematic unit design we have prepared based on the EPGBU curriculum, is very useful for gifted students (Teacher-42 years-Male)

The Examining of the Quality of Unit Designs

During in-service training process, teachers were divided into 5 groups. In this study, teachers have been given 5 themes for unit designs. These themes were; Life with Radiation, Biodiversity, Our Need of Clean Energy, Chemistry Making Life Easier, Catching up the Peak in Design and the Science of the Future: Genetic. In accordance with these themes, teachers have formed unit designs. Four of the unit designs have been completed by teachers. The four-unit designs have been scored according to the criteria specified by three experts studying in the field of gifted education (See, Table2).

As it is seen in Table 2; the mean of scores related to the quality of the unit designs given by the experts has been indicated. Accordingly, the lowest-scored dimensions have been found to be the Dimension of History and Philosophy of Science, the Dimension of Content: Abstractness, complexity, multifaceted , and the Dimension of the Multidisciplinary ($\bar{X}$= 2.66, $\bar{X}$=2.83, $\bar{X}$=2.83, $\bar{X}$ =2.92). Nevertheless, the highest-scored dimensions have been found to be the Dimension of based on the Real Life Problem, the Dimension of the Developing Scientific Process and Research Skills ($\bar{X}$=3.33, $\bar{X}$=3.33). At this point, it has been seen that significant examples from the history of science in the units designed by the teachers and the dimension of the science philosophy are insufficient. In addition, the experts have determined the weakness of the unit designs in terms of their content for gifted students. Additionally, multidisciplinary dimension of unit design has also not been found sufficient by experts.

Applicability of Designed Units by Teachers

In the forms directed to the experts, all the experts have agreed on the appropriateness of the unit designs prepared by the teachers for the education of gifted. Some of the experts' opinions on this issue are as follows;

Unit designs prepared by the teachers are suitable in terms of meeting the outcomes. (Expert 1). The unit designs which I examined can be implemented in the education of gifted students (Expert 2). The unit designs prepared by the teachers are sufficient in terms of the curriculum differentiation principles and the compatibility to the education of gifted students (Expert 3).

Inadequacies of Designed Units by Teachers

Shortcomings have been pointed out by the experts in some points related to the unit designs. These deficiencies are; the simplicity of project prepared by students in the unit designs, the lack of theme activities in terms of attractively for students, the weakness in some of the formative assessment, the weakness in terms of including activities for gifted students (such as abstractness, complexity), inadequate handling the history of

science and philosophy, being limited in the creativity dimension just by the creative product, the weaknesses in terms of the development of self-regulation skills. In this regard, several of the opinions of some experts are as follows:

In the Clean Energy theme; if the examples such as animation, cartoon, etc. had been given, the plan would have been more effective. Among others, it remained ineffective. What are the concepts used in taboo game? At least, a few examples could be given. The projects produced at the end, have helped a bit for gifted education, but I think these projects are really typical. Especially, the project: a solar car. Moreover, this case was the subject of ridicule in social media.) ("Gifted students did again renewable energy car design ..." as I remember from the news. Such kinds of projects are done in primary schools, too. However what do we get as a result, what do we benefit?. I'm not so sure. Perhaps, to do projects whose results can be seen as a concrete, should be better. Evaluation activities remained weaker than the other units' evaluation activities. "The evaluation of the product and the process is done together." (Expert 1). According to me, the important shortcoming in unit designs in terms of abstractness and complexity of the content is the proficiency in differentiated curriculum for gifted. At the same time, the relation between the themes and history of science is insufficient. What is more, the relation of the activities to planning in the implementation process of the activities in the unit design and outcomes of the content should be specified more clearly and in detail. In most of the unit designs, motivating approach to direct students to certain areas isn't drawing attention. All the themes should make students say " It is worth deepening and progressing in this theme." The aspect of that the theme and the content are tools for nurturing skills in fact is lacking. Self-regulation skills are important in the education of gifted, but this part is seen inadequate. Creativity dimension is limited only to do products. Also, enough importance weren't given to the interdisciplinary. In some unit designs, it is clearly seen that the dimension of science philosophy is weak (Expert 3).

Table 2. Scoring of quality of the unit design (according to EPGBU curriculum components) preparing by teacher groups at in-service training program

Unit Design Evaluation Criterion	Dimension of Content: Abstractness, complexity, multifaceted…	Dimension of developing critical thinking skills	Dimension of based on the Real Life Problem	Dimension of Developing Scientific Process and Research Skills	Dimension of Nurturing or Fostering Creativity at product and process	Dimension of History and Philosophy of Science	Dimension of the Multidisciplinary	Dimension of the nurturing self-regulatory skills in science learning
1st Group (Biodiversity Theme)	3.33 points	3.33 points	3.66 point	3.00 point	3.66 point	2.00 point	3.00 point	3.00 point
2nd Group (Life with Radiation Theme)	3.33 points	3.66 point	4.00 point	3.66 point	3.33 point	4.00 points	3.00 points	3.00 point
3rd Group (Chemistry Making Life Easier Theme)	2.33 points	3.00 point	3.00 point	3.66 points	2.33 point	3.00 point	2.66 point	3.33 point
4th Group (Our Needs of Clean Energy Theme)	2.33 points	2.33 point	2.66 point	3.00 point	2.33 point	2.66 point	2.66 point	2.66 point
Mean	**2.83**	3.08	3.33	3.33	**2.92**	**2.66**	**2.83**	3.00

Note: These differentiated instruction based unit designs were scored ranging from 1 point for insufficient to 4 point for sufficient (1 point insufficient, 2 point partially insufficient, 3 point partially sufficient, 4 point sufficient).

DISCUSSION AND CONCLUSION

In this study, the effectiveness of the in-service training program for the education of the gifted has been examined. It has been seen that this program enables teachers to increase their mentorship and self-efficacy in gifted education. Also the teachers' opinions on the in-service training program are in line with these findings. At the end of this program, teachers made unit designs according to the EPGBU curriculum components. Teachers have a common opinion on the applicability of this unit design. In addition, the unit designs prepared by teachers have been analyzed by three experts in terms of their quality. The experts have stated that the unit designs are applicable. However, in some dimensions in terms of quality, they have stated the lacks. These dimensions are, being appropriate for the gifted in terms of content, multidisciplinary dimension, the history of science and philosophy and creativity.

Increasing the number of in-service training for teachers about the education of the gifted students provides an increase in teachers' positive attitudes towards the gifted education (Lassig, 2003; Gross, 1994). The increase in positive attitudes can be said to be due to the increase in teachers' knowledge level of gifted education and awareness. However, in addition to teachers' knowledge about the education of the gifted, increasing teachers' self-efficacy to be able to give gifted education is also important. Thus, it contributes to the formation of effective or preferred gifted teachers mentioned in the literature (Heath, 1997; Mills, 2003; Chan, 2001). In this study, it is also required that the studies within STRCT 2229 projects, in-service teacher training program should be practical. For this reason, during in-service training programs, teachers were also given practical training. In gifted education, "independent research" is one of the important strategies. In addition, in these in-service training programs, there is an increase in teachers' independent research mentorship self-efficacy, which is to be able to make gifted independent research. Placing the practices about gifted education in in-service training about gifted education is advisable to create the effect of "Personal Experience" that is one of the four sources of Bandura's Social Learning Theory (Bandura, 1977, 1982, 1989; Gist, 1989) and from which the individual's self-efficacy perception is stemmed from.

In this study, teachers have been asked to design a unit for gifted education. That the teachers have agreed on the applicability of unit designs prepared by the teachers for academically gifted students, can give an idea about the practically functionality of the in-service training program. The teachers' positive thoughts on EPGBU program which is implemented in Turkey can also be an important indicator for the social validity of this training program (Tortop, 2014a). In some dimensions, the lack of quality of the unit designs prepared by the teachers is indicated by the experts. In curriculum differentiation for gifted, Maker (1982) emphasizes that abstraction, complexity and multifaceted should be in the context size. However, the unit designs prepared in this respect have deficiency. Deficiency is seen in terms of dimension of the history of science and philosophy. In gifted education, in certain areas, it is recommended to include gifted individuals' lives in the curriculum differentiation. In multidisciplinary dimension, there is also deficiency. However, in the curriculum models introduced for gifted education, the involvement of multidisciplinary dimension is very important (Tomlinson et al., 2002; VanTassel-Baska & Wood, 2009; Renzulli, 2009).) The other deficiency in the unit designs is in the dimension of nurturing creativity. One of the important skills which are needed to be nurtured is creativity in gifted education. That teachers should be encouraging the students to foster their creativity is emphasized (Copley & Urban, 2000). The deficiencies in unit designs have great importance in in-service trainings for teachers to comprehend in which fields they have deficiencies in gifted education and to receive intensive training in these fields.

Further research, different variables of in-service training program for gifted can be examined how effects which of the teachers' abilities.

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Appendix 1. Science Fair Mentorship Self-efficacy Scale for Teachers (SFMSST) [in Turkish]

Proje Yarışmaları Danışmanlık Öz-Yeterlik Ölçeği

Madde 1. Proje hazırlarken karşılaştıkları zorluklarla mücadele edebilmeleri için öğrenci(leri)me gerekli desteği verebilirim.
Madde 2. Öğrenci(leri)me bilgiye nasıl ulaşabileceği konusunda rehberlik yapabilirim.
Madde 3. Proje yarışmasında başarılı olabilmesi için öğrenci(leri)me gerekli rehberliği yapabilirim.
Madde 4. Öğrenci(leri)me etkili sunum yapabilmesi konusunda rehberlik edebilirim.
Madde 5. Öğrenci(leri)me proje hazırlarken kurum ve kuruluşlarla işbirliğine gitmesi konusunda etkili danışmanlık yapabilirim
Madde 6. Proje yönetimi becerileri konusunda yeterli bilgiye sahibim.
Madde 7. Proje değerlendirme kriterlerini yeterince biliyorum
Madde 8. Bilimsel araştırma yöntemleri konusunda yeterli bilgiye sahibim
Madde 9. Proje hazırlarken gerekli olan bilimsel süreç becerileri konusunda akademik olarak yeterliyim.
Madde 10. Proje tabanlı öğrenmeyle ilgili akademik yayınları takip etmekteyim.
Madde 11. Öğrenci(leri)mi proje yarışmalarına katılması için ikna edebilirim
Madde 12. Öğrenci(leri)min ilgisini proje yarışmalarına çekmede gerekli yönlendirmeyi yapabilirim
Madde 13. Öğrenci(leri)mi proje yarışmaları vasıtasıyla bilimsel araştırma yapmaya yönlendirebilirim
Madde 14. Öğrencilerin bilimsel araştırma becerilerini geliştiren bilim şenliklerine katılmalarını sağlamakta öğretmenler sorumludur.
Madde 15. Öğrencilerin ilgilerini proje yarışmalarına çekmekle öğretmenler sorumludurlar.
Madde 16. Öğretmenlerin proje yarışmalarında danışman olması önemli sorumlulukları arasındadır.

Alt Boyutlar
Faktör 1. Danışmanlık ve Rehberlik Yeterlik Boyutu: 1.,2.,3.,4.,5. maddeler
Faktör 2. Akademik Yeterlik Boyutu: 6.,7.,8.,9.,10. maddeler
Faktör 3.Yarışmaya Katılıma İkna Becerisi Boyutu: 11., 12., 13. maddeler
Faktör 4. Sorumluluk Boyutu: 14., 15., 16. maddeler

Appendix 1. Gifted Education Self-efficacy Scale for Teachers (GESST) [in Turkish]

Üstün Yetenekliler Eğitimine İlişkin Öz-Yeterlik Ölçeği

Madde 1. Üstün yetenekli öğrencilerin eğitimiyle ilgili gerekli akademik bilgiye sahibim.
Madde 2. Üstün yetenekli öğrencilerin eğitimi ile ilgili bilimsel araştırmalar yapabilirim.
Madde 3. Üstün yetenekli öğrencilerin eğitimiyle ilgili akademik yayınları takip ederim.
Madde 4. Üstün yetenekli öğrencilerin bireysel çalışmalarında gerekli danışmanlığı yapabilirim.
Madde 5. Üstün yetenekli öğrencilerin bireysel gelişmelerine uygun yönlendirmeler yapabilirim
Madde 6. Üstün yetenekli öğrencilerin eğitiminde gerekli olan duygusal desteği verebilirim.
Madde 7. Uzmanlık alanımda üstün yetenekli öğrencilere etkili mentörlük yapabilirim.
Madde 8. Üstün yetenekli öğrencilerin özel eğitim gereksinimlerini karşılamada öğretmenler sorumludur.
Madde 9. Üstün yetenekli öğrencilerin bilişsel/duyuşsal gelişimlerini sağlamada öğretmenler sorumludur.
Madde 10. Öğretmenlerin üstün yetenekli öğrencilerin eğitimiyle ilgili kendilerini yetiştirmeleri sorumlulukları arasındadır.
Madde 11. Üstün yetenekli öğrencilerin eğitiminde yeterince sabırlı davranabilirim.
Madde 12. Üstün yetenekli öğrencilerin eğitiminde yeterince hoşgörülü davranabilirim.
Madde 13. Üstün yetenekli öğrencilerin eğitim tarzımdan hoşlanmalarını sağlayacak espri yeteneğine sahibim.
Madde 14. Enerjik bir yapıya sahibim.
Madde 15. Geniş kültürel birikime sahibim.
Madde 16. Üstün yetenekli öğrencilerle iyi ilişkiler kurabilirim.
Madde 17. Üstün yetenekli öğrencilerin bana güven duymasını sağlayabilirim.
Madde 18. Öğrencilerin hata yapmalarına karşı toleranslı olabilirim.
Madde 19. Öğrencilerin problemler karşısında farklı bakış açıları geliştirmesini sağlayabilirim.
Madde 20. Öğrencilerin özel ilgilerini dikkate alarak gelişimlerini teşvik edebilirim.
Madde 21. Öğrencilerin uzun süreli çalışmalara motive olmasını sağlayabilirim.
Madde 22. Öğrencilerin merak duygularını uyarabilirim.
Madde 23. Öğrencilerin kendilerini değerlendirmelerini sağlayabilirim.
Madde 24. Üstün yetenekli öğrencilerin eğitiminde kullanılabilecek ders etkinlikleri geliştirebilirim/hazırlayabilirim.
Madde 25. Üstün yetenekli öğrencilerin eğitimiyle ilgili öğretimsel etkinlikleri uygulayabilirim.
Madde 26. Genel müfredatla uyumlu farklılaştırılmış öğretim planı hazırlayabilirim.

Alt Boyutlar
Faktör 1. Akademik Yeterlik Boyutu: 1., 2., 3. maddeler
Faktör 2. Mentörlük (Danışmanlık) Yeterlik Boyutu: 4., 5., 6.,7., maddeler
Faktör 3. Sorumluluk Boyutu: 8., 9., 10., Maddeler
Faktör 4. Uygun Kişilik Özellik Yeterlik Boyutu: 11., 12., 13., 14., 15., 16., ve 17. maddeler
Faktör 5. Yaratıcılığı Teşvik Etme Boyutu: 18., 19., 20., 21., 22., ve 23., maddeler
Faktör 6. Öğretimsel Planlama Yeterlik Boyutu: 24., 25., ve 26. maddeler