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Colleagues that are in editorial board worked hard to determine the articles of this issue. Articles are evaluated by the referees that are either in editorial board or outside the board.

Although WJEIS is a new journal, it has been welcomed with interest. A lot of journals from various universities are in the evaluation process. We would like to thank cordially our colleagues who work hard in editorial board to evaluate the articles, writers who contribute to our journal and all readers.

1st February, 2020

Best regards

Prof. Dr. Zeki Kaya

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GIFTED STUDENTS' SELF- EFFICACY OF EDUCATIONAL TECHNOLOGY FOR TECHNOLOGY AND DESIGN

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Abstract
The main purpose of this study is to determine the gifted students' self-efficacy of educational technology for technology and design. It is also aimed to find out whether there is a statistically significant difference in terms of the gender, the special talent area, the type of school, the grade level, the education level and income rate of families, and the preference of using information and communication technologies. In this study quantitative method was preferred and descriptive screening model was used since it was aimed to determine the students' self-efficacy. The research was conducted with 1.376 pupils who were students in twelve Science and Art Centers in different regions of Turkey. As a data collection tool, *The Self-Efficacy of Educational Technologies for Technology and Design Scale* developed by Author (2019) was used. The scale was prepared in 5-point Likert type and consisted of 4 sub-factors with 20 items. It was found that the four-factor structure explained 52.45% of the total variance for the concept to be measured. Cronbach's Alpha internal consistency coefficient value of the scale was α =0.89. According to the Confirmatory Factor Analysis (CFA) results, the items of the scale were grouped under the title of sub-factors as *Technology and Design, Problem Solving, Appropriate Tool Selection and the Use of Technology*. The scale was found to be highly compatible in terms of current compliance values. According to the results of the research, it was found that the gifted students' self-efficacy of educational technology for technology and design was at *Good* ($\bar{x}$=3.86 / $\bar{x}$=77.26). In addition, while there was no significant difference in terms of the gifted students' self-efficacy of educational technologies for technology and design according to the gender variable, statistically significant difference was found according to the special talent area, the type of school, the grade level, the education level and income rate of their families, and the preference of using information and communication technologies. According to the results of the research, it is observed that gifted students were at *Good* level in terms of the results of the sub factors *the Use of Technology, the Problem Solving Skills and the Appropriate Tool Selection and the Technology and Design*. By the way it can be said that the individualized education program and individual talent recognition program that special talented individuals follow in Science and Art Centers generally meet the efficiency gains.

Keywords: Gifted Students, Technology and Design, Educational Technologies, Self-Efficacy.

INTRODUCTION

The adaptation of human beings to the environment and meeting their needs in different environments are realized by learning (Kaya, 2002). Due to the rapid development of today's technology and the lack of space that this development does not affect in the world, the need of people to think very fast and to develop these thinking skills rapidly. Since all the resources on the earth are used directly by man, the most important value of humanity is human resources. For this reason, the most important wealth of a country is qualified manpower. A qualified population is a decisive factor in the most efficient use of the country's resources and economic development. The young and dynamic population also provides advantages in many respects and increases the efficiency of human capital investments (Yumuşak, 2008). Technology is the most important tool in educating people. Technology is the systematic application of scientific or other systematic knowledge to practical areas (Galbraith, 1967). Technological developments directly affect the structure and functions of educational institutions as in all areas of social life. Today, also known as the information

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age, the structure of societies has changed and with this change, the qualities that individuals should have, started to change (Gündüz and Odabaşı, 2004). There is no doubt that the technology should be included in the education process for the students in order to grow up with the qualifications required by the technological environment in a learning environment where technological opportunities are provided. The innovative and ever-changing nature of information communication technologies has forced education systems to change and many countries have based their national education policies on information and communication technologies (Tezci, 2011). In addition to providing students with skills related to information and communication technologies, it is undeniable that technology contributes to the learning and teaching of other courses and subjects in the program (Akpınar, 2003; Mumtaz, 2000). In terms of both hardware and software content, the FATIH Project (Increasing Opportunities and Technology Improvement Movement) is experiencing a technological transformation in the schools in Turkey. Today, it can be said that the development levels of the countries are directly proportional to the scientific and technological development in their countries. In this competitive environment, it is possible to raise special talented children defined by Eflatun as *Golden Children* and by Confucius as *Divine* to meet the needs of the age. The increasing importance given to science, technology and education as a result of the Cold War enabled technology to take its place in schools. At the same time, the education of special talented students has gained momentum in many countries, primarily in the USA (Periathiruvadi and Rinn, 2012). In Turkey, special talented students' education policies are not created for individuals' education, only has received the support of education by Science and Art Centers (SAC) (Cevher Kılıç, 2015). Teaching activities in these institutions are designed to support the talent fields of special talented children, to take into account the rapid and diverse learning, and to explore. Similarly, in the literature, it is seen that the researches and studies about the self-efficacy of educational technologies of gifted individuals are quite limited.

PURPOSE OF THE RESEARCH

The main purpose of this study is to determine the gifted students' self-efficacy of educational technologies for technology and design who are attending at SACs. It was also aimed to determine whether the gifted students' self-efficacy of educational technologies for technology and design was significantly difference in terms of some variables such as the gender, the special talent area, the type of school, the grade level, the education level and income rate of the families, and the preference of using information and communication technologies (ICT).

METHOD

Research Model

In this study, the quantitative method was preferred for gifted students who attend the Science and Art Centers. Descriptive screening model was used in this research, since it was aimed to determine the students' self-efficacy. Because screening models are suitable for research aimed at describing the past or present situation as it exists (Karasar, 1999).

Research Sample

The research sample of the study consists of pupils studying at the secondary school level in twelve Science and Art Centers, in different regions of Turkey. During the institution selection process, the method of contacting the personnel to support transportation and work was followed. Sampling method was not preferred as all the students studying at secondary school level of the selected institutions were tried to be reached.

Demographic information such as the gender of the participants, their special talent areas, the type of school they attend, the grade level, the education level and income rate of the families, and the preference of using information and communication technologies can be seen in Table 1.

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Table 1: Demographic information of the participants

Variable	Group	n	%
The Gender	Female	665	48.3
	Male	711	51.7
	Total	1.376	100
The Registration Area for SAC	Visual Arts	330	24
	Music	495	36
	General Mental Ability	521	37.9
	Multiple Areas	30	2,2
	Total	1.376	100
The Type of School	Secondary School	956	69.5
	Religious Secondary School	420	30,5
	Total	1.376	100
The Grade Level	5th grade	350	25.4
	6th grade	274	19.9
	7th grade	410	29.8
	8th grade	342	24.9
	Total	1.376	100
The Education Level of Mothers	Primary School	358	26
	Secondary	360	26.2
	High School	320	23.3
	University	262	19
	Graduate	76	5.5
	Total	1.376	100
The Education Level of Fathers	Primary School	232	16.9
	Secondary School	307	22.3
	High School	344	25
	University Degree	374	27.2
	Master Degree	119	8.6
	Total	1.376	100
The Income Rate of the Family	0-2000 ₺	397	28.9
	2001-6000 ₺	671	48.8
	6001-10.000 ₺	243	17.7
	10.001 ₺ and above	65	4.7
	Total	1.376	100
The Preference of Using ICT	Mobile Phones	985	71.6
	Computer	261	19
	Tablet	104	7.6
	Other	26	1.9
	Total	1.376	100

When Table 1 is examined, it can be seen that the students who took part in the survey 48.3% (n=665) were women and 51.7% (n=711) were men. According to the special talented areas in SAC's, 24% (n=330) of the students were in the area of *Visual Art Area*, 36% (n=495) were in the area of *Music Area*, 37.9% (n=521) in the area of the *General Mental Area*, 2.2% (n=30) were registered in more than one area. According to the type of school, 69.5% (n=956) of the students were attending the secondary school and 30.5% (n=420) of the students were attending the religious secondary school. In addition, 25.4% (n=350) of the students were in Grade 5, 19.9% (n=274) were in Grade 6, 29.8% (n=410) were in Grade 7 and 24.9 % (n=342) were in the 8th grade. When the educational status of the families of special gifted students were examined, 26% (n=358) of the mothers was primary school graduate, 26.2% (n=360) was secondary school graduate, 23.3% (n=262) were university degree 5.5% (n=76) was a master degree; 16.9% (n=232) of their fathers were primary school graduate, 22.3% (n=307) of secondary school, 25% (n=374) of university degree, 8.6% (n=76) master of degree. When the income rates of the families were examined,

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28.9% (n=397) were in the 0-2000₺ income range, 48.8% (n=243) were in the 2001-6000₺ income range, 17.7% (n=243) were in the 6001-10.000₺ income range and 4.7% (n=65) were in the 10,001₺ and above income range. When the preferences of using ICT by the gifted students were examined, it was determined that 71.6% (f=985) of the students preferred using mobile phones, 19% (f=261) of the students preferred using computers and 7.6% of the students preferred using tablets.

Data Collection Tool

As a data collection tool, *the Self-Efficacy of Educational Technologies for Technology and Design (SET-T&D) Scale* developed by Author (2019) was used. The scale is a 5-point Likert type and the responses are 'Very Good=5', 'Good=4', 'Medium=3', 'Weak=2' and 'Very Poor=1'. The scale consists of four sub-factors with twenty items. It was found that the four-factor structure explained 52.45% of the total variance for the concept. Cronbach's Alpha internal consistency coefficient was α=.89. KMO value of the scale (0.93) was quite acceptable. According to the CFA results of the scale, the items were gathered under the headings of *Technology and Design, Problem Solving, Appropriate Tool Selection and Use of Technology*. The items' compliance values of the scale with X^2/sd (2.11), RMSEA (0.04), S-RMR (0.04), NFI (0.96), NNFI (0.98), CFI (0.98), RFI (0.95), IFI (0.98) had good fit value, acceptable fit values with GFI (0.93), AGFI (0.92) and RMR (0.04) values. When the items' fit indexes were evaluated as a whole, it was found that they corresponded to the values stated in the literature. The highest score that can be gained from the scale after the application is 100 points and the lowest score is 20 points. As the scores gained from the application of the scale increase, it can be said that the gifted students' self-efficacy of educational technologies of for technology and design is *high* and when the score decreases, the level of proficiency is *low*. In order to interpret the scores obtained from each item and the sum of the scale in more understandable way, the ranges of scores given in Table 2 and the corresponding adequacy levels were determined.

Table 2: Score Ranges of Educational Technology Self-Efficacy Levels for Technology and Design

Average Score Range		Self-Efficacy Level
Item Score Range	Scale Total Score	
1,00-1,80	20,00-36,00	Very Poor
1,81-2,60	36,01-52,00	Weak
2,61-3,40	52,01-68,00	Middle
3,41-4,20	68,01-84,00	Good
4,21-5,00	84,01-100,00	Very Good

The difference between the highest items' score and the lowest items' score in the determination of interval values were determined by dividing the number of options by five levels [(5-1)/5=0.80]. In addition, when determining these ranges for the total score of the scale, a standard value was found by dividing the range width of the highest and lowest scores by the number of options [(100-20)/5=16] and then the ranges were determined approximately according to this value.

Data Collection And Analysis

In order to apply the scale to the participants, 4.000 measurement instruments were prepared. As a result of the application, 36.4% (n=1.457) of the measurement instruments were applied. 81 measuring instruments that were in the form of a pattern and always answered the same or left blank were not taken into consideration. As a result, data consisted of 1.376 measurement tools were entered to the statistical analysis program. In the analysis of the data, firstly the arithmetic means and standard deviations of the self-efficacy scores of 20 items were calculated. As the results did not meet normality assumptions the *Mann Whitney-U Test* for the unrelated two samples was used to determine whether there was a significant difference according to the levels of self-efficacy the gender of the participants and the type of school they attend. And then Kruskal Wallis test was performed for unrelated k-samples to determine whether there was a significant difference according to some variables such as the special talent area, the grade level, the education level and the income rate of the family and the preference of using ICT. In this study significance level was taken as 0.05.

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RESULTS

In order to decide which statistical tests to be applied for the data set, first of all the normality of the data distribution test was applied and the findings are given in Table 3.

Table 3: The Normality of Data Distributions Test Results

The Tests	Means of the Scale	Means of 1st Factor	Means of 2nd Factor	Means of 3rd Factor	Means of 4th Factor
The Descriptives Analiyse	X	X	X	X	X
The Value of Skewness-Kurtosis	√	√	√	√	√
Skew./Std. Error and Kur./ Std. Error	X	X	X	X	X
The Value of Kolmogorov-Smirnov	X	X	X	X	X
The Graphic of Histogram	√	X	X	X	X
The Results of Stem-and-Leaf Plot	√	X	X	X	X
The Graphic of Normal Q-Q	√	X	X	X	X
The Graphic of Detrented Normal Q-Q	X	X	X	X	X
The Graphic of Box Plot	X	X	X	X	X

√: Parametric, X: Non-parametric

When the scale is evaluated as a whole with its sub-factors, it can be said that the data are not normally distributed, that's why it is non-parametric. Since the normality assumption for parametric statistics could not be met, it was decided to perform *Mann Whitney-U* test for two unrelated samples and *Kruskal Wallis* test for unrelated k-sample in the SET-T&D scale analysis.

In order to determine the self-efficacy of gifted students' educational technologies for technology and design, the average grade and the average score of the answers given by the participants in the scale can be seen in Table 4.

Table 4: Educational Technologies Self-Efficacy of Students for Technology and Design

N	Average Score Range		Self-Efficacy Level
	Item Grade Point Scale	Total Score Average	
1.376	3.86	77.26	Good

The results as seen in Table 4 above, the level of the students who participated in this study were at *Good* level as $\bar{x}$=3.86 (3.41-4.20=Good), and the mean total score of the scale was at *Good* level as $\bar{x}$=77.26 (68.01-84.00=Good). According to these results, it can be said that the self-efficacy of gifted students' educational technologies for technology and design are at *Good* level.
In order to analyze whether the results varies on the basis of sub-factors, the tests were made on the basis of sub-factors and the results are given in Table 5.

Table 5: The Results of Sub-Factors

N	Sub-Factors	Number of Substances	Substance Mean	Standard Deviation	Self-Efficacy Level
1.376	Technology and Design	7	3.61	0.82	Good
	Problem Solving	6	3.99	0.70	Good
	Appropriate Tool Selection	4	3.95	0.80	Good
	Use of Technology	3	4.06	0.76	Good

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When the results in Table 5 are examined; the average of sub-factor *Technology and Design* with seven items was at *Good* level ($\bar{x}$=3.61), and the average of sub-factor *Problem Solving* with six items was at *Good* level ($\bar{x}$=3.99), the average of sub-factor of *Selection of Appropriate Tool* with four items was at *Good* level ($\bar{x}$=3.95) and the average of sub-factor *Use of Technology* with three items was at *Good* level ($\bar{x}$=4.06) too. According to these results, it was found that the self-efficacy of the gifted students' educational technologies for technology and design are at *Good* level as the score range equivalent to the answer options of the scale.

The scores and standard deviations of the competence perceptions of the students participating in the research for each item (achievement) are listed from lowest to highest in Table 6.

Table 6: Grade Point Average and Standard Deviation of Students' Proficiency Levels

Scale Items	n	$\bar{x}$	s
12-I can design products using 3D printing technology.	1.376	3.32	1.32
13-I can sketch a new communication tool for the future in digital environment	1.376	3.45	1.23
14-In digital environments, I can distinguish that colors correspond to a code of numbers.	1.376	3.45	1.24
20-I can benefit from virtual reality software during the design process.	1.376	3.63	1.21
16-I can store my designs in information storage (cloud technologies) environments on the internet.	1.376	3.72	1.17
11-I can design in digital environments.	1.376	3.76	1.16
15-I can design a new teaching material by following the principles of efficiency (using resources effectively, doing cost-benefit analysis, planning, evaluating, doing the job correctly, etc.).	1.376	3.76	1.09
8-In the design process, I can pay attention to the principles of ergonomics (conformity to the human body).	1.376	3.79	1.12
4-I can gather information about the problems that affect humanity in technology and design process.	1.376	3.89	1.06
5-I can use social networking sites as a resource in the process of technology and design.	1.376	3.91	1.11
10-I can contribute to technological progress by introducing original ideas.	1.376	3.92	1.07
1-To reach information, I use effectively such as experts, digital / printed media, library.	1.376	3.96	1.03
17-I can distinguish malware such as adware or spyware.	1.376	3.98	1.13
18-I can use picture, image and sound editing programs.	1.376	4.00	1.11
6-I can improve my problem solving skills with educational technology.	1.376	4.08	.99
19-I can select appropriate programs and tools when preparing technology and design projects.	1.376	4.09	1.00
2-I can check the accuracy and reliability of the information I have acquired by using educational technologies.	1.376	4.09	.99
7-I can use recycled materials in designs.	1.376	4.09	1.05
9-I can take necessary occupational health and safety measures in technology and design process.	1.376	4.10	1.04
3- I can use new technological products by using my existing knowledge.	1.376	4.18	.98

When the data in Table 6 is examined, it can be seen that the average of item "12-I can design products using 3D printing technology." was at the lowest *Good* level ($\bar{x}$=3.32), and the average of item "3-I can use new technological products by using my existing knowledge." was at the highest *Good* level ($\bar{x}$=4.18).

In order to determine whether there is a statistically significant difference between the self-efficacy averages of the talented students' educational technologies for technology and design according to the gender of the participants, unrelated sample *Mann Whitney U* test has been performed and the results are given in Table 7.

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Table 7: Mann Whitney U-Test Results of the Gender Variable

Gender	n	Row Mean	Row Total	U	p
Female	665	706.10	469559.00	224701.000	0.112
Male	711	672.04	477817.00		

According to the results of the test, it has been observed that there is no significant difference between the gender variable, U=224701.000, p>0.05. When the average ranks are taken into consideration, it is understood that the self-efficacy of male students is higher than the female students.

In order to reveal whether there is a statistically significant difference on the basis of sub-factors of the scale according to the gender variable, the results are given in Table 8.

Table 8: Gender Variable Results According to Scale Sub-Factors

Sub Factors	Gender	n	Row Mean	Row Total	U	p
T&D	Female	665	694.62	461923.50	232336.500	0.580
	Male	711	682.77	485452.50		
PS	Female	665	728.40	484386.50	209873.500	**0.000**
	Male	711	651.18	462989.50		
CAT	Female	665	689.86	458755.50	235504.500	0.902
	Male	711	687.23	488620.50		
TK	Female	665	702.83	467380.50	226879.500	0.191
	Male	711	675.10	479995.50		

T&D: Technology and Design, PS: Problem Solving, CAT: Choosing Appropriate Tool, UT: Use of Technology

According to the result of sub-factor *Technology and Design*, it is seen that there is no significant difference in terms of gender variable U=232336.500, p>0.05. Considering the rank averages of the sub factor *Technology and Design*, it is understood that the self-efficacy of the students are higher than the female students.

According to the result of sub-factor *Problem Solving*, it has been found that there is a significant difference in terms of gender variable U=209873.500, p<0.05. When the rank averages of the Problem Solving sub-factor are taken into consideration, it is understood that the self-efficacy of female students are higher than male students.

According to the results of sub-factor *Choosing Appropriate Tools*, it is seen that there is no significant difference in terms of gender variable U=235504.500, p>0.05. Considering the rank averages of the results, it is understood that the self-efficacy of male students are higher than female students.

According to the results of sub-factor *Use of Technology*, it is seen that there is no significant difference in terms of gender variable U=226879.500, p>0.05. Considering the rank averages, it is understood that the self-efficacy of male students are higher than female students.

In order to determine whether there is a statistically significant difference between the self-efficacy of the gifted students' educational technologies for technology and design according to the types of secondary schools they attend, unrelated sample *Mann Whitney U* test is performed and the results are given in Table 9.

Table 9: Mann Whitney U -Test Results According to the Types of School

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School Types	n	x̄	s	sd	t
Secondary School	956	711.73	680412.00	178554.000	**0.001**
Religious Secondary School	420	635.63	266964.00		

According to the results, it has been found that there is a significant difference between averages of the school type variable of the students, U=178554.000, p<0.05. Considering the mean of the rank, it is understood that the self-efficacy of the secondary school students are higher than the students who are in religious secondary schools.

Mann Whitney-U test was carried out in order to reveal whether there is a statistically significant difference on the basis of sub-factors in terms of the school type variable and the results are given in Table 10.

Table 10: Gender Variable Results in Terms of Sub-Factors

Sub Factors	Type of School	n	Row Mean	Row Total	U	p
T&D	Secondary	956	704.78	673766.50	185199.500	**0.022**
	Religious Secondary	420	651.45	273609.50		
PS	Secondary	956	709.84	678603.50	180362.500	**0.003**
	Religious Secondary	420	639.93	268772.50		
CAT	Secondary	956	709.25	678047.50	180918.500	**0.003**
	Religious Secondary	420	641.26	269328.50		
UT	Secondary	956	716.30	684778.50	174187.500	**0.000**
	Religious Secondary	420	625.23	262597.50		

T&D: Technology and Design, PS: Problem Solving, CAT: Choosing Appropriate Tools, UT: Use of Technology

According to the results of sub-factor *Technology and Design*, it was found that there is a significant difference in terms of school type variable of the students U=185199.500, p<0.05. Considering the rank averages of the sub-factor *Technology and Design*, it is understood that the self-efficacy of the students in secondary schools are higher than the students studying in religious secondary schools.

According to the result of sub-factor *Problem Solving*, it has been found that there is a significant difference between the school type variable of the students U=180362.500, p<0.05. Considering the rank averages of the sub factor, it is understood that the self-efficacy of the students in secondary schools is higher than the students studying in religious secondary schools.

According to the results of sub-factor *Choosing Appropriate Tools*, it was found that there is a significant difference between the school types variable of the students U=180918.500, p<0.05. Considering the rank averages of the sub-factor, it is understood that the self-efficacy of the students in secondary schools are higher than those studying in religious secondary schools.

According to the results of sub-factor *Use of Technology*, it has been found that there is a significant difference between the school types variable of the students U=174187.500, p<0.05. Considering the rank averages of the sub-factor, it is understood that the self-efficacy of the students are higher than the students studying in religious secondary schools.

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Kruskal-Wallis test was performed to determine whether the average of the answers given by the students participating in this study was statistically significant according to the special talent area in the SACs and the results are given in Table 11.

Table 11: Results of Kruskal-Wallis Test in Terms of Special Ability Area

The Area of Special Talent	n	Mean of Rank	sd	χ^2	p
Visual Arts	330	531.42	3	179.435	**0.000**
Music	495	604.24			
General Mental	521	849.27			
More than One Talent Area	30	1014.77			

According to these results, it can be seen that it is a significant difference according to their special talent areas, χ2 (sd=3, n=1.376)=179.435, p<0.05. These results show that the special talent areas in which students are enrolled have different effects in increasing the self-efficacy of educational technologies for technology and design. When the average ranks of the groups are taken into consideration, it is seen that the students enrolled in the area of *General Mental, Music* and *Visual Arts* are followed by the students enrolled in the areas of *General Intellectual, Music* and *Visual Arts* after the application.

Since the self-efficacy of students enrolled in the special talent areas have at least a statistically significant difference between the two groups, Kruskal Wallis multiple comparison test was performed to find out which groups this difference is in and the results are given in Table 12.

Table 12: Multiple Comparison Test Results of the Special Talent Areas

Group	Test Statistics	Standard Error	Standard Test Statistics	p
Visual Arts-Music	-72.824	28.231	-2.580	0.059
Visual Arts-General Mental	-317.851	27.948	-11.948	**0.000**
Visual Arts-More Than One Talent Area	-483.352	75.753	-6.381	**0.000**
Music-General Mental	-245.026	24.934	-9.827	**0.000**
Music-More Than One Talent Area	-410.527	74.587	-2.219	**0.000**
General Mental-Multible Area	-165.501	74.587	-2.219	0.159

According to the nonparametric multiple comparison test results, it is seen that there is a statistically significant difference between the students enrolled in the area of *Visual Arts* and students enrolled in *Music, General Mental Ability* and Students enrolled in *Multiple* areas and students enrolled in *Music and General Mental Ability* and *Multiple* areas.

Kruskal-Wallis test was performed in order to determine whether there is a statistically significant difference according to the grade levels of the gifted students and the results are given in Table 12.

Table 12: The Results of Kruskal-Wallis Test in Terms of Grade Levels

Grade Level	n	Rank Mean	sd	χ^2	p
5th Grade Level	350	702.11	3	12.863	**.005**
6th Grade Level	274	726.41			
7th Grade Level	410	705.83			
8th Grade Level	342	623.43			

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According to these results, the scores show us that the is a significant difference according to their grade levels, χ2 (sd=3, n=1.376)=12.863, p<0.05. This finding shows that the grade levels in which students are attend have different effects in increasing the self-efficacy of educational technologies. When the average ranks of the groups are taken into consideration, it is seen that after the application, the gifted students studying in the 6th grade have the highest the self-efficacy of educational technologies for technology and design, followed by the students studying in the 7th, 5th and 8th grade.

Since the self-efficacy of students' educational technologies for technology and design according to their grade levels are at least statistically significant between two groups, Kruskal Wallis multiple comparison test was performed to find out which groups this difference is in, and the results are given in Table 13.

Table 13: Multiple Comparison Test Results of Grade Levels

Group	Test Statistics	Standard Error	Standard Test Statistics	p
8th–5th Grade Level	78.679	30.205	2.605	0.055
8th–7th Grade Level	82.401	29.092	2.832	**0.028**
8th–6th Grade Level	102.987	32.208	3.198	**0.008**
5th–7th Grade Level	-3.722	28.910	-0.129	1.000
5th–6th Grade Level	-24.309	32.044	-0.759	1.000
7th–6th Grade Level	20.586	30.998	0.664	1.000

According to the nonparametric multiple comparison test results, it is seen that there is a statistically significant difference between students studying in the 8th grade and students studying in the 7th and 6th grades.

Kruskal-Wallis test was performed to determine whether there is a statistically significant difference according to the education level of the mothers of the students and the results are given in Table 14.

Table 14: *The Results of Kruskal-Wallis Test of Their Mothers Education Status*

The Level of Education	n	Rank Mean	sd	χ^2	p
Primary School	358	624.78	4	35.393	**0.000**
Secondary School	360	635.87			
High School	320	729.44			
University Degree	262	761.26			
Master Degree	76	814.73			

According to these results, the scores of the students participating in the study differ significantly according to the education level of their mothers, χ2 (sd=4, n=1.376)=35.393, p<0.05. This finding shows us that the education levels of the students' mothers have different effects on increasing the self-efficacy of the students. When the average ranks of the groups are taken into consideration, it is seen that the students whose mothers are University Degree have the highest self-efficacy.

Since the educational status of the mothers' of gifted students were observed at least statistically significant between the two groups, Kruskal Wallis multiple comparison test was conducted to find out which groups the difference was and the results are given in Table 15.

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Table 15: The Results of Multiple Comparison for the Educational Status of Mothers

Group	Test Statistics	Standard Error	Stan.Test Statistics	p
Primary-Secondary	-11.093	29.651	-0.374	1.000
Primary-High	-104.666	30.561	-3.425	**0.006**
Primary-University	-136.484	32.298	-4.226	**0.000**
Primary-Master Degree	-189.952	50.172	-3.786	**0.002**
Secondary-High	-93.573	30.521	-3.066	**0.022**
Secondary-University	-125.391	32.260	-3.887	**0.001**
Secondary-Master Degree	-178.859	50.148	-3.567	**0.004**
High-University	-31.818	33.098	-0.961	1.000
High-Master Degree	-85.287	50.691	-1.682	0.925
University-Master Degree	-53.469	51.757	-1.033	1.000

According to the nonparametric multiple comparison test results, there is a statistically significant difference between the students' mothers who are primary school graduate and their mothers who are high school, university and master degree graduate, and between the students' mothers who secondary school graduate and high school, university and master degree graduate.

Kruskal-Wallis test was performed to determine whether there is a statistically significant difference according to the education level of the fathers of gifted students and the results are given in Table 16.

Table 16: The Results of Kruskal-Wallis Test of Fathers Education Status

The Level of Education	n	Rank Mean	sd	χ^2	p
Primary School	232	592.14	4	33.271	**0.000**
Secondary School	307	652.01			
High School	344	696.09			
University Degree	374	729.64			
Master Degree	119	819.26			

According to these results, the scores of the students participating in this study differ significantly according to their father's education level, $\chi 2$ (sd=4, n=1.376)=33.271, $p<0.05$. This finding shows us that the education status of the fathers of the students have different effects in increasing the self-efficacy of students. Considering the rank averages of the groups, it is seen that the students whose father's master degree graduates have the highest self-efficacy, followed by students whose fathers are University, High School, Primary School and Secondary School degree.

According to the educational status of the fathers of the students, it is observed that there is at least statistically significant difference between the two groups. Kruskal Wallis multiple comparison test is performed to find out which groups this difference is in, and the results are given in Table 17.

Table 17: The Multiple Comparison Test Results of Educational Status of Fathers

Group	Test Statistics	Standard Error	Stand.Test Statistics	p
Primary-Secondary	-59.877	34.558	-1.733	0.832
Primary-High School	-103.951	33.748	-3.080	**0.021**
Primary-University	-137.500	33.199	-4.142	**0.000**
Primary-Master Degree	-227.127	44.792	-5.071	**0.000**

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Secondary-High School	-44.074	31.189	-1.413	1.000
Secondary-University	-77.623	30.594	-2.537	0.112
Secondary-Master Degree	-167.250	42.897	-3.899	**0.001**
High School-University	-33.549	29.677	-1.130	1.000
High School-Master Degree	-123.176	42.248	-2.916	**0.036**
University-Master Degree	-89.627	41.810	-2.144	0.321

According to the nonparametric multiple comparison test results, it shows us that there is a statistically significant difference between the students whose fathers are primary school graduates and those whose fathers are high school, university and master degree, and between the students whose fathers are secondary school degree and master degree. It is also seen that there is a statistically significant difference between the students whose fathers are high school degree and those who are master degree.

Kruskal-Wallis test was performed to determine whether there is a statistically significant difference according to the income rates of the gifted student's families and the results are given in Table 18.

Table 18: Kruskal-Wallis Test Results of Families Income Rates

Income Rate of the Family	n	Rank Mean	sd	χ^2	p
0-2000₺	397	590.61	3	49.139	**0.000**
2.000-6.000₺	671	699.70			
6001-10.000₺	243	766.05			
10.000₺ and above	65	880.86			

According to these results, the scores gained from the students participated in this study differ significantly according to their income rates of their families, $\chi 2$ (sd=3, n=1376)=49.139, p<0.05. This finding shows us that the income rates of the students' families have different effects on increasing their self-efficacy. Considering the rank averages of the groups, the students with 10.001₺ and above have the highest self-efficacy and the students are going after as 6.001-10.000₺, 2.001-6.000₺ and 0-2.000₺ income.

Since there is a statistically significant difference between according to the income rates of the families of gifted students, Kruskal Wallis multiple comparison test was performed and the results are presented in Table 19.

Table 19: The Multiple Comparison Test Results of the Income Rates

Group	Test Statistics	Standard Error	Stand. Test Statistics	p
0-2.000–2.001-6.000₺	-109.081	25.153	-4.337	**0.000**
0-2.000–6.001-10.000₺	-175.435	32.356	-5.422	**0.000**
0-2.000–10.000₺ and above	-290.247	53.154	-5.461	**0.000**
2.001-6.000–6.001-10.000₺	-66.353	29.742	-2.231	0.154
2.001-6.000–10.000₺ and above	-181.166	51.604	-3.511	**0.003**
6.001-10.00– 10.000₺ and above	-114.812	55.473	-2.070	0.231

According to the nonparametric multiple comparison test results, it is seen that there is a statistically significant difference between the students whose family income rates are between 0-2.000–2.001-6.000₺ and those whose income rates are 0-2.000–6.001-10.000₺ and above. And also there is a

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statistically significant difference between the students whose family income rates are between 2.001-6.000 and 10.000₺ and above.

Kruskal-Wallis test was performed to determine whether there is a statistically significant difference according to the preference of using ICT variable of gifted students and the results are given in Table 20.

Table 20: Results of Kruskal-Wallis Test for the Preference of Using ICT

ICT	n	Rank Mean	sd	χ^2	p
Mobile Phone	985	669.61	3	13.261	**0.004**
Computer	261	762.09			
Tablet	104	658.93			
Others	26	783.90			

According to these results, the scores of the students participating in the study differ significantly according to their preferences of using ICT, χ2 (sd=3, n=1.376) = 13.261, p<0.05. This finding shows us that students' preferences of using ICT have different effects in increasing their self-efficacy of educational technologies towards technology and design. When the average ranks of the groups are taken into consideration, it is seen that the students who prefer using other technological devices have the highest self-efficacy, followed by the students who prefer using computers, mobile phones and tablets.

Kruskal Wallis multiple comparison test was performed to find out in which groups this difference is between, since the statistically difference observed between at least two groups. The results are given in Table 21.

Table 21: The Multiple Comparison Test Results for the Preference of Using ICT

Group	Test Statistics	Standard Error	Standard Test Statistics	p
Tablet-Computer	103.160	46.065	2.239	0.151
Tablet-Others	-124.976	87.103	-1.435	0.908
Mobile Phone-Computer	-92.483	24.656	-3.344	**0.005**
Mobile Phone-Others	-114.299	78.929	-1.448	0.886
Computer-Others	-21.816	81.696	-0.267	1.000

According to the nonparametric multiple comparison test results, there is a statistically significant difference between students who prefer using mobiles phone and students who prefer using computers.

CONCLUSION AND DISCUSSION

It has been determined that 1.376 students' average scores are *Good* (x̄=3.86 / x̄=77.26). According to these results, it can be said that the gifted students' self-efficacy of educational technologies for technology and design are at *Good* level.

When the self-efficacy of gifted students are analyzed on the basis of scale sub-factors, the *Technology and Design* sub-factor average consisting of seven items is at *Good* level (x̄=3.61), and the *Problem Solving* sub-factor average of six items is at *Good* level (x̄=3.99). It was determined that the Appropriate Tool Selection sub-factor average consisting of four items was at *Good* level (x̄=3.95) and the Use of Technology sub-factor average consisting of the three items was at *Good* (x̄=4.06). According to these results on the basis of the sub-factors, the gifted students' self-efficacy of the

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educational technologies for technology and design competence is at *Good* level for the score range determined.

As a result of the *Mann Whitney-U* test conducted in order to determine whether there is a statistically significant in gender variable, no significant difference has been found. When the average ranks are taken into consideration, it is understood that the self-efficacy of male students is higher than the female students.

As a result of the U-Test conducted in order to reveal whether there is a statistically significant difference on the basis of sub-factors of the scale according to the gender variable; there is no significant difference detected according to the *Technology and Design* sub-factor, *Appropriate Tool Selection* sub-factor and *Use of Technology* sub-factor. However there is a statistically significant difference between the self-efficacy gender variable in favor of female students.

As a result of the Mann Whitney-U test conducted in order to determine whether there is a statistically significant difference in terms of school types variables, a statistically significant difference is found in favor of gifted students studying in secondary schools. On the basis of all sub-factors, a statistically significant difference is found in favor of those studying in secondary schools.

As a result of Kruskal-Wallis test conducted in order to determine whether there is a statistically significant difference in terms of the special talent areas variable, a statically significant difference is found between students enrolled in the *Visual Arts, General Mental Ability* and *Multi* areas in favor of students enrolled in *Multi Areas*. And also statistically significant difference is found between students enrolled in the *Music* areas and *General Mental Ability* and *Multi* areas in favor of *General Mental Ability* and *Multi* areas.

According to the results of Kruskal-Wallis Test conducted in order to determine whether there is a statistically significant difference according to the grade level variable, it is found out that the is a statistically significant difference between the students studying in 8th grade and the students studying in the 7th and 6th grades in favor of students studying in 7th and 6th grades.

According to the results of Kruskal-Wallis Test, which was aimed to determine whether there is a statistically significant difference according to the variables of their mothers' educational status, it is found out that there is a statistically significant difference between their mothers who are primary school graduate and those who are high school, university and master degree status in favor of students graduating from university and master degree graduates And also statistically significant difference is found between the students whose mothers are secondary school graduate and those who are high school, university and master degree graduate in favor of students whose mothers are high school, university and master degree status.

According to the results of Kruskal-Wallis Test conducted in order to determine whether there is a statistically significant difference according to their father's educational status variable, it is found out that there is a statistically significant difference between the students whose fathers are primary school graduates and those whose fathers are high school, university and graduate in favor of students whose fathers are high school, university and graduate. It is also found out that there is a statistically significant difference between students whose fathers are secondary school graduates and those whose fathers are master degree graduates, in favor of students whose fathers are master degree graduates, and finally there is a statistically significant difference between students whose fathers are high school graduates and students whose fathers are master degree graduates, in favor of students whose fathers are master degree graduates.

With the Kruskal-Wallis Test conducted in order to determine whether there is a statistically significant difference according to the income levels of the families. It is found out that there is a statistically significant difference between the families of the gifted students income rates 0-2.000₺ and those

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whose income rates are 2001-6.000₺, 6.001-10.000₺ and 10.000₺ and above in favor of 6.001-10.000₺ and 10.000₺ and above.

According to the results of Kruskal-Wallis Test conducted to determine whether there is a statistically significant difference according to preference of using ICT, it is found out that there is a statistically significant difference between students who prefer using mobile phones and students who prefer using computers in favor of the students who prefer using computers.

According to the results obtained from the research, it can be said that the individualized education program (IEP) and the individual talent awareness program (ITAP) activities that special talented individuals attend in SACs largely meet students' acquisitions.

In the literature review conducted, studies on educational technologies self-efficacy of technology and design for specially talented students were not found. However, the studies considered to be similar in terms of subject were examined and the results were compared.

As a result of the study of Yilmaz, M., Üredi, L. and Akbasli, S. (2015) aimed to determine the pre-service teachers' perceived of computer proficiency levels and their perceptions about the use of technology in education, the pre-service teachers' perceptions about technology use in education has revealed that it is sufficient.

Gunes, A., Buluc, B. (2017) investigated the relationship between classroom teachers' use of technology and self-efficacy beliefs. It is concluded that there is no significant difference between teachers' self-efficacy beliefs in terms of gender and educational status and there is a significant difference according to professional seniority. In addition, it has been concluded that there is a positive, moderate and significant relationship between technology use and self-efficacy belief and that technology use predicts self-efficacy belief.

Misirli, Z. (2015) examined the competencies of secondary school students regarding educational technology standards that they met the technology standards of the students to a large extent and it was seen that there was no statistically significant difference according to gender, education and working status of their parents were connected to computers, internet connection and other technological tools. By the way it reveals that it is positively affected by possessions.

The study conducted by Özkurt, M. F., Erben Keçici, S. (2017) aimed to reveal the relationship between classroom teachers' self-efficacy and instructional technologies and material design skills. As a result of the study, classroom teachers' perceptions of teacher self-efficacy are sufficient, their perceptions do not differ according to gender and duration of service, and instructional technologies and material design skills affect their perceptions of teacher self-efficacy. In other words, it is stated that as teachers' teaching technologies and material design skills increase, their perceptions of teacher self-efficacy increase.

Saygıner, Ş. (2016) conducted in order to evaluate the pre-service teachers' perceptions of computer proficiency levels and technology use in education in terms of various variables, it was observed that pre-service teachers did not have a significant difference in terms of computer proficiency in terms of departments and that they had a medium level proficiency. It has been determined that the weakest areas are database and web page preparation. It was observed that men's computer competence was better than women and individuals with their own computer and internet access were higher than those without a computer. According to the departments, there was a significant difference in their perceptions of technology use in "Science - Class, English - Turkish Teachers" and there was no difference between groups in terms of gender, computer ownership and internet access. In addition, it has been determined that there is a weak and positive relationship between technology adequacy levels and perception scores regarding the use of technology in education.

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