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## A Comparison between Competencies of Teachers and Students of Teacher Education in Recognizing Artistically Gifted Students

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**Abstract:** School system has not proven successful in educating gifted students. Artistically gifted students are a group of students requiring special education approach. The aim of this paper was to explore the extent to which classroom teachers and students as future teachers are able to identify artistically gifted students. The study involved a total of 160 respondents, among which 80 classroom teachers and 80 students at the Faculty of Humanities and Social Sciences, Department of Teacher Education in Split. The results showed statistically significant differences in the identification of artistically gifted students between groups of teachers and groups of students, future teachers. The results showed that there is a statistically significant difference in the assessment of several factors of giftedness of students in the surveyed teachers compared to students of Teacher Education. A statistically significant difference is present in Factor 1 (Art Abilities) where  $p(0.00) < 0.05$ , and in Factor 3 (Motivation in Artistic Expression) where  $p(0.00) < 0.05$  and in Factor 4 (Use of Fine Arts) where  $p(0.04) < 0.05$ . A statistically significant difference between students and teachers is not present in Factor 2 (Art Interests) where  $p(0.78) > 0.05$ . Furthermore, the results showed that teachers and students of Teacher Education share the opinion that gifted students will have a high level of learning, possess a large number of artistic ideas and show interest in figurative and abstract forms of artwork.

**Keywords:** *Artistic giftedness, competences, students, teachers.*

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### Introduction

#### *Giftedness and artistically giftedness*

Today's education faces the problems in identifying and working with gifted students. Caring for the development of student giftedness should be the primary educational goal if we are to provide a future for society. A key role in discovering gifted children is played by the teacher. One of the important tasks of a teacher is to identify artistically gifted students.

Racki (2018) points out that giftedness is a term used to describe a lifelong construct that includes ability, creativity, knowledge, skills, attitudes and interests, but also family, educational and social circumstances invested in the pursuit of excellence. The concept of giftedness is difficult to define.

Skupnjak (2019) states that "*giftedness is a complex and multilayered construct, and numerous conceptualizations of the term have been developed, different names being used with different understandings thereof: e.g. above-averageness, giftedness, ingenuity, talent. All of these have resulted in numerous definitions, thus about 140 different definitions are used in the scientific world, which sufficiently speaks to the complexity of this phenomenon*" (p. 2).

As Cvetkovic (2002) Lay states, giftedness is defined in different ways, it is described with different terms and character traits. The concept of giftedness has been "running through" the educational practice for centuries throughout history. Exploring the existing literature we can come across a number of different answers about the concept of giftedness. The philosophers of Socrates and Plato emphasize the qualities of the gifted, believing that the qualities of the gifted entail finding the stages of knowledge more quickly and achieving higher levels of understanding (George, 2005). According to Adzic (2011), as early as in the 17th century, J. A. Komensky emphasized the importance of the gifted and the importance of recognizing them, especially in the context of education. There are different definitions of giftedness,

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thus Terman points out that giftedness is a high general intellectual ability (according to Winner, 2005), while according to Tanenbaum (1983), giftedness is a productive creative ability. On the other hand, there are also opinions that giftedness is an innate trait, an innate preference and ability of the individual. It is this fact that explains the success of the individual in various fields (arts, sports, mathematics). Success related to above-average results in a scientific, technical or artistic field (Von Krafft & Semke, 2008).

When speaking about the education system in general, it is considered that in the past it saw more success in the education of children with average abilities than in the education of gifted and talented children (Hurwitz & Day, 2006). There has been a scientific interest in artistic giftedness for many years, however, there is much less knowledge on artistic giftedness than the general giftedness and giftedness in other areas (Cudina-Obradovic, 1991). Although interest in artistic giftedness arose around the world seventy years ago, programs for developing children's artistic giftedness are generally few (Kuscevic, 2005).

When it comes to gifted children, it is most often emphasized that the gifted child is the one who wants and can do more (Marincel, 2013). Children who do many things sooner, faster, more successfully and differently from their peers and who have better and higher achievements in doing so are identified as gifted (Cvetkovic Lay, 2002). This way of defining gifted children is in line with the modern definitions of giftedness and talent. Therefore, the most accepted definitions of giftedness are determined precisely in this way, through the achievements of the individual (Cvetkovic Lay & Sekulic Majurec, 2008).

Children who are gifted in visual arts actually see the world differently. Artistically gifted children encode visual information more accurately and see the world less in terms of concepts and more in terms of form and visual characteristics. Cukierkorn (2008) argues that when average young children draw or paint, they show objects and the world as they understand and see it, and do not display the true visual characteristics of the world. In contrast, artistically gifted children portray the world realistically.

According to some analyses of artistic skills, it is possible to find strong points for recognizing artistic giftedness. These points are descriptions of the external behavior and visible characteristics of the child, by which it is possible to distinguish a gifted child from a non-gifted one (Cudina-Obradovic, 1991).

Chetelat (1981) provided a rather concrete and exhaustive list of characteristics of artistically gifted children. Such children have a better visual vocabulary and show a greater range in the choice of topics in their work; have an unusually developed imagination and are better able to present a portrait in a picture; they are far more developed than their peers; they outperform peers in conscious attempts to group people and objects; are able to use colors and contrasts more subtly; are aware of the possibilities and limitations of certain visual media; are ready to explore new materials for artistic expression; are ready to expand their interest in new topics and content and seek further explanation and instruction; their perception is visually oriented, they have a more precise observation, they have more efficient interaction between visual observation and visual memory, they are quite sensitive to strange objects, shapes, themes, they are more influenced by the unusual approach of the artist, they show particular development in several directions: creating shapes, grouping, presenting portraits and using color; they show interest in the aesthetic qualities of a work of art, qualities such as composition, color and technique (according to Cudina-Obradovic, 1991)

In addition, Winner (2005) lists certain characteristics of artistically gifted children and emphasizes the differences between usual artistic development and the development of a gifted child: children with average artistic skills have good knowledge of the art schemes and forms learned; artistically gifted children rely on the remembered details of an experienced situation. Artistically gifted children have previously mastered visual presentation skills such as achieving rotation, shortening, showing perspective and shadow. An artistically gifted child is not only more capable of artistic expression but possesses increased sensitivity to shapes, color, texture, position and movement.

Hurwitz and Day (2006), moreover, find that the characteristics of artistically gifted children are divided into characteristics that are directed at them, that is, their personality traits and those that children direct to their art.

Artistically gifted children are usually preoccupied with their drawings, which is noticeable from an early age (two to three years of age), and are strongly focused on drawing as a means of expression because the drawing fulfills their need to present details. They are deeply focused on their work and are much oriented towards themselves, their work, they are self-motivated. Artistically gifted children may exhibit inconsistencies with their creative behavior, more precisely, their creativity is not in line with layman's conception of creativity, in addition, artistically gifted children often use their gift as an escape, escape from the usual lifestyle and daily obligations, life rules (Hurwitz & Day, 2006).

Speaking of art-oriented characteristics of artistically gifted children, we can say such children are able to create a realistic and credible account of their surroundings or their loved ones at an early age, and are distinctly visual types. They do not see the world the same way as the rest of us, they show more details, more episodes. They create schemes according to their interests and needs, which they later develop and increasingly shape. They are sensitive to the visual art media, they want to know more, to explore and they seek explanations. Finally, accidental improvisation is an essential feature of artistically gifted children. They improvise with lines, shapes, patterns (Hurwitz & Day, 2006).

In his book, Winner (2005) outlines certain characteristics of a drawing made by an artistically gifted child, which distinguishes it from the drawing of an average child. These characteristics include the realism in drawing, the presentation of volume, depth and composition when drawing. To achieve the illusion of realism by displaying the third dimension on a two-dimensional surface, artistically gifted children use all techniques (contour line closure, shortening, size reduction, surface texturing, linear perspective) to achieve volume, depth and composition. Artistically gifted children often draw using figurative or perceptual strategy (Winner, 2005).

For an artistically gifted child, it is important to spend time in an enriched environment since an early age, this implying an interesting, stimulating and diverse environment for the child and providing challenges and raising the child's performance standards (Huzjak, 2006).

According to Cudina-Obradovic (1991), gifted children are most often identified with the help of teacher's observations, using various identification lists filled in by teachers, parents and the child. Children's works are observed and the opinions of already established artists are sought. Today's education stresses the importance of the teacher's approach to gifted students as well as the teaching competences to work with gifted students.

*“Implementing modern approaches to working with gifted students primarily requires legal acts and by-laws, which oblige to ensuring adequate conditions and models of education. Likewise, teacher's skills are necessary for implementation and realization. Teacher's abilities are most prominent in the development of differentiated curricula, which determine the individualized approach, as well as the content and methodological adaptation of teaching contents” (Zrilic & Marin, 2017, p. 92).*

#### *Giftedness research*

The knowledge base in the field of giftedness identification is increasing. Expanding the empirical foundation in these areas also leads to better-designed researches regarding the identification of gifted students, in large part because traditional approaches are considered to be very biased (Plucher & Callahan, 2014). There are a number of recommendations to improve identification practices (Callahan et al., 2013). However, research on identification policies and practices is limited, and evidence of success is questionable (Borland, 2014). There are several promising studies for example, Peters and Gentry (2010, 2012a) that have collected evidence on the teacher assessment scale and its use in a multi-criteria identification system. Peters and Gentry (2012b), also McBee (2006, 2010) conducted state-level identification policy studies. Peters et al. (2014) hold that identification of gifted should be used as a means of inclusion (locating more students) as opposed to exclusion (preventing learning). In combination with the aforementioned new conceptions of giftedness (Barab & Plucker, 2002; Subotnik et al., 2011), there is reason for optimism regarding improved identification practices. Assessment research is diverse, with serious lines of research regarding a range of measurement strategies (Kaufman et al., 2008; Plucker & Makel, 2010). Identification and creativity are examples of areas that have traditionally been criticized for poor conceptualization, thin empirical bases, mixed evidence of effectiveness. However, as noted by outside observers (Richie, 2013), some widely accepted principles of gifted education are not empirically well supported or the evidence is rather mixed. Conclusions in the research range from claims that gifted students have unique social and emotional needs to the belief that the social development and emotional adjustment of gifted students are equal to or better than the general population. Other researchers believe that gifted students do not have unique social and emotional characteristics, but that family, school, and cultural contexts influence the manifestation of traits in a unique way (Neihart et al., 2002).

However, researches in the field of artistic giftedness is not represented to a large extent because it requires an interdisciplinary approach and cooperation with experts in art pedagogy.

Research on the evaluation of artistically gifted children in primary school was conducted by Duh and Lep (2008) in Slovenia. In this research, 40 primary school teachers evaluated 65 art works of students. This research showed that only 10% of teachers recognized gifted students.

In the 2018 survey, Brajčić et al. (2018) wanted to determine whether teachers knew the characteristics of artistically gifted children of early school age. They concluded that teachers are familiar with the characteristics of artistically gifted students of younger school age. Indeed, teachers, especially those with years long work experience, successfully identify artistically gifted students.

In a similar study (Brajčić & Kusčević, 2020) conducted with preschool teachers, it was found that identifying artistically gifted children was a major challenge for educators. The study included 72 artworks of preschool children identified by the educators as gifted in the visual arts field. The aim was to determine whether the children identified by the educators as gifted were truly gifted. A thorough analysis of the works of art revealed that the educators accurately assessed artistic giftedness in only 10 % cases.

This research is motivated to determine what primary school teachers as well as Teacher Education students consider important to determine a child's giftedness and whether there are differences in competencies between teachers and students of Teacher Education.

The objective of this research was to determine to which extent classroom teachers on the one hand, and students, as future teachers, on the other hand, successfully identify artistically gifted children, or artistically gifted students. We also wanted to explore which characteristics of artistic giftedness both teachers and students believe to be expressed by artistically gifted children in their artistic creation.

### Methodology

#### Research Goal

In the wake of the aforementioned researches, a new research was conducted related to the teacher competencies for identification of artistically gifted students.

Before processing the research results, the following hypotheses were made:

H1: *It will be possible to reduce the aforementioned survey questionnaire particles to a smaller number of factors, more precisely the dimensions.*

H2: *There is a statistically significant difference in identifying factors of artistic giftedness between teachers and students.*

H3: *Classroom teachers will show better results in identifying factors of artistic giftedness than students.*

#### Sample and Data Collection

A total of 160 respondents, involving 80 classroom teachers and 80 students of Teacher Education participated in the study. Students and teachers who participated in the research live in the area of Split-Dalmatia Region, Republic of Croatia. The data were collected directly from the study participants, the participation in the survey being voluntary and completely anonymous. Data were collected during October and November 2019. The anonymous questionnaire contained 15 questions within a rating scale of 1-5 (1- strongly disagree to 5 - strongly disagree)

The instrument was a survey questionnaire designed for the purposes of this research, and the data were processed in the program Statistica 13.2 (Dell Inc, Tulsa, OK, SAD).

The following variables extracted from the questionnaire were used: artistically gifted children are often very long motivated in artistic creation (*Motivation*), artistically gifted children have a developed imagination (*Imagination*), artistically gifted children have a large number of visual art ideas (*Ideas*), artistically gifted children show interest in figurative and abstract forms of art work (*Interest*), artistically gifted children have a spontaneous awareness of composition (*Composition*), artistically gifted children are more capable of displaying movements and profiles in a picture (*Movement and profile*), artistically gifted children show a greater range in the choice of visual art topics (*Range of topics*), artistically gifted children have a richer visual language (*Language*), artistically gifted children better perceive compositional elements (*Composition perception*), artistically gifted children have a distinct ability to observe and remember visual details and complete structure (*Details and structure*), they observe the artworks with great interest (*Observing with interest*), they are able to define a visual art task on their own and complete it (*Independence*), artistically gifted children more subtly use colors and their contrasts (*Subtlety*), artistically gifted children easily switch from one artwork tool to another (*Transitions*), artistically gifted children enjoy solving difficult visual art tasks (*Difficult tasks*).

#### Analyzing of Data

Initially, the parameters of the descriptive statistics were calculated for all variables: arithmetic mean (AM), median (Med), minimum score (Min), maximum score (Max), standard deviation (SD), asymmetry coefficient ( $\alpha_3$ ) and flatness coefficient ( $\alpha_4$ ).

In order to examine the normality of distribution, the significance of the Kolmogorov-Smirnov test (KSp) was calculated. To determine the dimensionality or factor structure of the questionnaire used, exploratory factor analysis strategy was used with the *Guttman-Kaiser* main factor extraction criterion and *Varimax Raw* rotation. We also checked outlier.

The matrix of factor structure (matrix of correlation of factors and variables) and the variance of factors are presented in absolute and percentage terms. Based on the extracted factor structure, the factors were interpreted and the variables were condensed into factors by arithmetic mean. In order to confirm the differences in the observed variables between teachers and students, the non-parametric *Mann-Whitney U* test was used, and rank sums, U value, Z value and significance level (p) were calculated.

Type 1 error was set to  $\alpha = 5\%$ . All results were processed using Statistica 13.2 package (Dell Inc, Tulsa, OK, USA).

### Findings / Results

Table 1 presents the results of descriptive statistics for the total sample of respondents with the following parameters calculated: arithmetic mean (AM), minimum score (Min), maximum score (Max), standard deviation (SD), asymmetry coefficient ( $\alpha_3$ ) and flatness coefficient ( $\alpha_4$ ) and the significance level of the KS test (KSp).

Table 1: Descriptive statistics parameters for the total sample of respondents

Variables	AM	Med	Min	Max	SD	$\alpha_3$	$\alpha_4$	KSp
Motivation	4,26	4	2	5	0,8	-0,81	-0,13	<0.01
Imagination	4,67	5	2	5	0,56	-1,91	5,02	<0.01
Ideas	4,38	5	1	5	0,85	-1,56	2,6	<0.01
Interest	4,38	5	3	5	0,7	-0,69	-0,71	<0.01
Composition	4,39	4,5	2	5	0,69	-0,8	-0,07	<0.01
Movement and profile	4,46	5	2	5	0,78	-1,48	1,76	<0.01
Range of topics	4,45	5	2	5	0,72	-1,02	0,07	<0.01
Language	4,19	4	1	5	0,89	-0,93	0,31	<0.01
Composition perception	4,41	5	2	5	0,73	-0,9	-0,2	<0.01
Details and structure	4,56	5	3	5	0,65	-1,2	0,27	<0.01
Observing with interest	4,26	4	2	5	0,76	-0,73	-0,09	<0.01
Independence	4,16	4	1	5	0,92	-0,92	0,24	<0.01
Subtlety	4,19	4	2	5	0,83	-0,63	-0,51	<0.01
Transitions	4,22	4	2	5	0,8	-0,72	-0,2	<0.01
Difficult tasks	4,34	5	1	5	0,82	-1,26	1,81	<0.01

Table 1 provides descriptive statistics for the entire sample, including the data for both teachers and students. Observing the KS test used in this study to examine the normality of results distribution, we can conclude that all variables of the questionnaire have a consistently disturbed normality of distribution. All variables of this questionnaire have the same value of the KS test ( $p < 0.01$ ). More specifically, based on the KS test, we can conclude that the majority of the respondents answered the questionnaire particles with a 4 – I partially agree, and a 5 – I completely agree.

Furthermore, in the results processing the asymmetry coefficient ( $\alpha_3$ ) was used to examine the results asymmetry. In Table 1 we can see the asymmetry coefficient is constantly negative, that is, the graph in the presentation of the results would be oriented significantly to the right. For example, we can see the least negative coefficient at the *Interest* variable (- 0.69) and the most negative coefficient at the *Imagination* variable (- 1.91).

The standard deviation (SD), that is, the scatter of results measure, is relatively low for all variables, ranging from 0.56 to 0.89. The maximum score for all variables is 5.00 while the minimum score is 1.00 for the *Ideas* and *Language* variables. The arithmetic mean (AM) of the results is also interesting, as it is significantly high for all variables. The highest AM is at the *Imagination* variable, where it amounts to 4.67.

Table 2 shows the results of the factor analysis of the questionnaire applied. The exploratory factor analysis strategy was used with the *Guttman-Kaiser* main factor extraction criterion and *Varimax Raw* rotation. The matrix of factor structure (matrix of correlation of factors and variables) and the variance of factors are presented in absolute and percentage terms.

Table 2: The matrix of factor structure of the questionnaire applied along with Guttman-Kaiser main factor extraction criterion and Varimax Raw rotation.

Variables	Factor 1	Factor 2	Factor 3	Factor 4
Motivation	0,18	0,27	<b>0,82</b>	-0,05
Imagination	0,13	<b>0,78</b>	0,25	0
Ideas	0,16	<b>0,64</b>	0,16	0,34
Interest	0,23	<b>0,65</b>	-0,03	0,4
Composition	<b>0,53</b>	0,41	0,07	0,34
Movement and profile	<b>0,74</b>	0,27	0,06	0,17
Range of topics	<b>0,59</b>	0,29	0,31	0,18
Language	<b>0,68</b>	0,05	0,33	0,22
Composition perception	<b>0,82</b>	0,12	0,09	0,2
Details and structure	<b>0,74</b>	0,07	0,09	0,22
Observing with interest	0,29	-0,01	0,34	<b>0,63</b>
Independence	0,11	-0,04	<b>0,65</b>	0,51
Subtlety	0,24	0,18	0,03	<b>0,77</b>
Transitions	0,29	0,33	-0,01	<b>0,68</b>
Difficult tasks	0,24	0,27	0,14	<b>0,55</b>
Variance	3,26	2,07	1,56	2,61
Variance %	0,22	0,14	0,1	0,17

Factor analysis of the questionnaire indicates that there are several factors, more precisely the four dimensions into which individual variables are grouped. This factor analysis also confirmed the first hypothesis of the research.

H1: *It will be possible to reduce the aforementioned survey questionnaire particles to a smaller number of factors, more precisely the dimensions.*

**Factor 1 (Artistic skills)** includes the variables: *Composition, Movement and profile, Range of topics, Language, Composition perception, Details and structure.*

**Factor 2 (Artistic interest)** includes the variables: *Imagination, Ideas and Interest.*

**Factor 3 (Motivation in artistic expression)** includes the variables: *Motivation and Independence.*

**Factor 4 (Using artistic knowledge)** includes the variables: *Observing with interest, Subtlety, Transitions and Difficult tasks.*

Table 3 presents the results of the descriptive statistics parameters (with respect to the extracted factors) for the total sample of all survey participants in addition to the results of the sub-samples. The sub-samples are represented by a group of students and a group of teachers who participated in the survey. The following parameters were calculated: arithmetic mean (AM), minimum score (Min), maximum score (Max), standard deviation (SD), asymmetry coefficient ( $\alpha_3$ ) and flatness coefficient ( $\alpha_4$ ) and significance of the KS test (KSp).

*Table 3: Descriptive statistics parameters for the total sample of all survey participants in addition to the sub-samples of student and teachers*

Variables		AM	Med	Min	Max	SD	$\alpha_3$	$\alpha_4$	KSp
Factor 1 (Artistic skills)		4,41	4,5	2,67	5	0,57	-0,98	0,34	<0.01
Factor 2 (Artistic interest)		4,48	4,67	2,33	5	0,56	-1,08	0,93	<0.01
Factor 3 (Motivation in artistic expression)	Total	4,21	4,5	2	5	0,71	-0,69	-0,31	<0.01
Factor 4 (Using artistic knowledge)	sample	4,25	4,25	2,25	5	0,62	-0,67	0	<0.01
Factor 1 (Artistic skills)		4,25	4,33	2,83	5	0,62	-0,59	-0,68	<0.01
Factor 2 (Artistic interest)		4,45	4,67	3	5	0,59	-0,64	-0,86	<0.01
Factor 3 (Motivation in artistic expression)	Students	4,05	4	2	5	0,72	-0,47	-0,3	<0.05
Factor 4 (Using artistic knowledge)		4,13	4,25	2,25	5	0,71	-0,5	-0,45	<0.10
Factor 1 (Artistic skills)		4,57	4,67	2,67	5	0,46	-1,42	3	<0.05
Factor 2 (Artistic interest)		4,5	4,67	2,33	5	0,53	-1,65	3,81	<0.01
Factor 3 (Motivation in artistic expression)	Teachers	4,38	4,5	2,5	5	0,67	-1	0,05	<0.01
Factor 4 (Using artistic knowledge)		4,38	4,5	3,25	5	0,5	-0,45	-0,67	<0.10

In Table 3, we can further observe a very high arithmetic mean for the total sample, yet it remains very high for sub-samples (teachers and students). Looking at the total sample and sub-sample of students, we can see the highest arithmetic mean at Factor 2 (Artistic interest), while in the sample of teachers the highest arithmetic mean is at Factor 1 (Artistic skills).

The minimum and maximum values of the results are quite similar for the total sample and for both sub-samples. The standard deviation is slightly lower for the sub-sample of teachers than for the sub-sample of students and the total sample, which indicates a smaller dispersion of teacher results. Also, the asymmetry coefficient is more negative for the sub-sample of teachers, indicating that the teachers responded to all the questionnaire variables with higher grades than the students.

The results of the distribution normality test using the KS test show that not all variables have a consistent normality (KSp <0.01), which indicates the necessity of using non-parametric statistical methods.

Table 4 shows the results of the Mann Whitney U test. The Mann Whitney U test is a non-parametric method of statistics used to interpret the results of these two sub-samples to find out if there is a statistically significant difference in the results of the sub-samples.

*Table 4: Mann Whitney U test results for all variables. Sum of U ranks – sum of ranks of teacher results, Sum of S ranks – sum of ranks of student results, U – U test value, Z – Z test value, p – Significance level of differences between groups.*

Variables	Sum of U ranks	Suma of S ranks	U	Z	p
Factor 1 (Artistic skills)	7427.50	5452.50	2212.50	3.37	0.00
Factor 2 (Artistic interest)	6520.50	6359.50	3119.50	0.27	0.78
Factor 3 (Motivation in artistic expression)	7315.00	5565.00	2325.00	2.98	0.00
Factor 4 (Using artistic knowledge)	7034.00	5846.00	2606.00	2.03	0.04

*In Table 4, as part of the Mann Whitney U test scores for all questionnaire variables, we note the results of the sum of teacher rankings, the sum of student rankings, and the significance level of group differences (p).*

In Table 4 we see in which segments the difference between the judgment of teachers and students, future teachers is visible and it is statistically significant in Factor 1 (Artistic skills) where  $p(0.00) < 0.05$ . The obtained value is statistically significant with a risk level of less than 5%. In factor 3 (Motivation in artistic expression) where  $p(0.00) < 0.05$ , the value obtained is statistically significant with a risk level of less than 5%, and in factor 4 (Using artistic knowledge) where  $p(0.04) < 0.05$ , the value obtained is statistically significant with a risk level of less than 5%. A statistically significant difference between students and teachers does not exist only in Factor 2 (Artistic interest) where  $p(0.78) > 0.05$ , ie the probability that (such a large) value per case will occur in the population is greater than 5%. So both groups of respondents agree only that the factors related to artistic interest are an indicator of artistic giftedness.

### Discussion

If we look at the significance level of differences between teachers and students ( $p$ ), we can easily see that there is a statistically significant difference between teachers and students in their ability to identify factors of artistic giftedness. This also confirms the second hypothesis of the research.

*H2: There is a statistically significant difference in identifying factors of artistic giftedness between teachers and students.*

Statistically significant difference between student and teacher results is present at Factor 1 (Artistic skills) where  $p(0.00) < 0.05$ , at Factor 3 (Motivation in artistic expression) where  $p(0.00) < 0.05$ , and at Factor 4 (Using artistic knowledge) where  $p(0.04) < 0.05$ . Statistically significant difference between students and teachers is not present only at Factor 2 (Artistic interest) where  $p(0.78) > 0.05$ .

We have shown that there is a statistically significant difference between teacher and student results, yet we have not shown who is assumed to better identify factors of artistic giftedness. To find this out, we need to analyze the sums of the rankings of teacher and student scores.

For all the extracted factors of artistic giftedness, we can easily see that the sums of the rankings of the teacher scores are significantly higher than the sums of the rankings of the student scores. For example, we can read from the table that for Factor 1, the sum of the rankings of teacher scores is 7427.50, while the sum of the rankings of student scores for the same factor is 5452.50. These facts suggest that it is teachers who have greater and better abilities in identifying factors of artistic giftedness rather than students, as future teachers. This confirms the third and last hypothesis of this research on children's artistic giftedness.

*H3: Classroom teachers will show better results in identifying factors of artistic giftedness than students.*

The only factor showing a very small difference in the sum of teacher and student rankings is Factor 2 (Artistic interest), which indicates that most teachers and most students agree with the statements that artistically gifted children have a highly developed imagination, many different artistic ideas, and that they usually show great interest in figurative and abstract forms of art work. With other factors, as we have already pointed out, there is a difference in the perceptions of the skills and personality traits that characterize artistically gifted children.

We can take for example Factor 3 (Motivation in artistic expression). Most classroom teachers agree with the statement that artistically gifted children are very long motivated in artistic creation and are able to define a visual art task on their own and complete it. On the other hand, students have a divided opinion, most of them do not think that artistically gifted children are necessarily very long motivated in artistic creation and are able to define a visual art task on their own and complete it.

Previous research that assessed teachers' ability to recognize artistic talent, using qualitative methods (Duh & Lep, 2008; Brajčić & Kuscevic, 2020) showed a very low level of ability to recognize artistically gifted children by teachers and educators.. Research conducted in Slovenia (Duh & Lep, 2008) and research conducted in Croatia (Brajčić & Kuscevic, 2020) showed that only 10% of teachers and educators are able to identify artistically gifted children. In the mentioned researched teachers and educators were offered art works of children for judgment. Unfortunately, this proved to be too much of a challenge for teachers and educators.

This research goes in a different direction and tries to determine which factors teachers consider important for identification. Teachers were offered factors to judge:

1. Motivation (Artically gifted children are often motivated in art work for a very long time).
2. Imagination (artistically gifted children have a developed imagination).
3. Ideas (artistically gifted children have a large number of artistic ideas).
4. Interest (artistically gifted children show interest in figurative and abstract forms of art work).
5. Sense of composition (artistically gifted children possess a spontaneous awareness of composition).
6. Display of movements and profiles in the picture (artistically gifted children are more capable of showing movements and profiles in the picture).

7. Range of topics (artistically gifted children show a larger range in the choice of art topics).
8. Understanding of visual language (artistically gifted children have a richer visual language).
9. Observing the composition (artistically gifted children notice the compositional elements better).
10. Sense of detail and structure (artistically gifted children have distinct abilities to perceive and remember visual details and overall structure).
11. Observation with interest (artistically gifted children observe works of art with great interest).
12. Independence (they are able to give themselves an art task and complete it).
13. Subtlety (artistically gifted children use colors and their contrasts more subtly).
14. Flexibility (artistically gifted children easily switch from one art medium to another).
15. Difficult art tasks (artistically gifted children enjoy solving difficult art tasks).

On a scale of 1-5, teachers and students stated which of these factors they considered important for the identification of artistic talent.

From the attached it can be determined that the competencies of teachers in identifying the factors of artistic talent are higher, ie that teachers better recognize the factors through which the identification of artistically gifted children is performed.

Comparing this research with the other of this kind we can generally conclude that teachers know what are the factors of artistic talent through which they can identify artistically gifted children. However, when observing the work of art itself, as was the case in the research conducted by Duh and Lep (2008) and, Brajčić and Kuscevic (2020), they fail to identify an artistically gifted student.

Why did we introduce Teacher Education students to the research? It was important for us to determine how much the education in this area allows students to acquire competencies for recognizing artistically gifted children. Research has confirmed that students also recognize giftedness factors, but do not give them the same importance when compared to teachers.

### **Conclusion**

The results of this research are difficult to compare with the researches on this topic, because the relevant researches is mainly related to the study of giftedness in general. This research refers to a specific area of artistic talent, ie factors through which artistic talent can be identified.

The research showed a statistically significant difference between the results of students of Teacher Education and classroom teachers in favor of teachers, which is present in Factor 1 (Artistic skills) where  $p(0.00) < 0.05$ , in Factor 3 (Motivation in art expression) where is  $p(0.00) < 0.05$  and for Factor 4 (Use of Fine Arts) where  $p(0.04) < 0.05$ . The statistically significant difference between students and teachers is only not present in Factor 2 (Art Interest) where  $p(0.78) > 0.05$ . It can be concluded that teachers still valorize the characteristics of artistic talent better than students, which can be interpreted by their experience.

A potential problem in identifying the artistically gifted is actually the educational system failing to recognize giftedness. Recognizing giftedness and excellence is important for the development of society as a whole. As Mikulić et al. claim: "Awarding excellence denotes the cultural value that is important for democracy and the development of civilization" (Mikulić et al., 2017, p. 908).

Identifying the artistically gifted is an essential prerequisite for developing their excellence.

In this study, we identified discrepancies in the opinions of classroom teachers and students as future teachers. Classroom teachers have shown that they better recognize the factors that are important for recognizing artistically gifted students than students of Teacher Education and we can conclude that there are differences between them in the perception of artistic talent. We can assume that the results are actually a reflection of the teachers' particular experience in working with children and perhaps also of meeting and working with the artistically gifted. Another reason may be the assumption that teachers have more knowledge of visual arts in the practice of working with children, since students at this stage of their studies are only just getting acquainted with the visual arts in working with children. An interesting fact of this research is that most teachers and most students find that the artistically gifted are characterized by a developed imagination, a large number of artistic ideas and an interest in figurative and abstract forms of work. In the future, this factor of artistic giftedness should certainly be analyzed more closely and explored more often in teaching practice. Although awareness of the importance of educating artistically gifted students has increased tremendously, unfortunately many gifted children remain unrecognized. It is the task of the responsible teacher and the school to detect the gifted children early and to take care of the development of their giftedness.



Although teachers, according to this research, successfully identify artistically gifted students, the problem is that in practice teachers do not provide these students with a different approach to work that would give them the opportunity to develop their potential. Namely, everything remains on the fact that artistically gifted students are recognized and identified. It is important to include such students in the appropriate program, ie art workshops in order to better encourage their development.

The results of this research could encourage research in all areas where student giftedness emerges and examine how well trained teachers are in recognizing children's giftedness in other segments. This would certainly be important because research of this kind could contribute to better education of teachers and students of Teacher education, and the development of programs for better education of teachers and future teachers to recognize giftedness in all segments of education.

Our suggestion in future researches on identify the students artistic talent by teachers is to involve the wider population through classroom work. Early identification of gifted students is very important and therefore such research should be continued.

The limitation of this research is certainly the number of respondents (80 teachers and 80 students of Teacher Education). This is a representative sample in the Split-Dalmatia Region, but perhaps the generalization would be more accurate if the number of respondents were extended to other regions or the whole country.

Some more variables should also be included in future researches to achieve better results that will help more easily identify the teacher's ability to discover and recognize artistically gifted children.

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