

Miroslav Huzjak (Associate professor, M.S.), Marijana Županić Benić (Lecturer)
University of Zagreb, Faculty of Teacher Education / Faculty of Teacher Education, Croatia
miroslav.huzjak@ufzg.hr , marijana.zbenic@ufzg.hr

Measuring creativity in didactics of visual art in elementary school

Abstract

In the contemporary society, creativity is one of the most desirable abilities which an individual can possess in all the fields of human activity. On the other hand, educational policy and national curriculums marginalize art subjects according to their importance in most countries of the world, while the advantage is given to STEM disciplines (science, technology, engineering, mathematics). Although creativity, according to many educational standards, is one of the key abilities, routine activities are still valued more than creative activities in teaching practice. However, art subjects are the ones which develop creativity (constructive) potential within an individual, but this also heavily depends on a teacher/professor, on his methodological approach and abilities within the scope of professional activity. Therefore, we conducted empirical research in tutorial and non-tutorial (for Methodology of visual art) primary schools. We expected that we would influence the development of creativity with students through regular collaboration with university, problem-based learning of art and artistic language, inventiveness in creating art assignments and through increasing public awareness of harmfulness of stereotypical artistic expression. Apart from a large number of verified tests of creativity, Urban-Jellen test „The Test for Creative Thinking - Drawing Production (TCT-DP)“, which is based on the activity of drawing has been used. We wanted to know whether there was a statistically significant difference between tutorial and non-tutorial schools in students' performance in the test which is used to examine the level of creativity. The level of significance of difference between control group and experimental group is statistically determined by a chi-squared test. The research has been carried out in elementary schools in the area of the city of Zagreb, on the sample that included the students of fourth and eighth grade. The results of the research indicate that there is a possible influence of collaboration between the mentors and university professors and students of teacher-training collage within the scope of Methodology of visual art on students' creativity.

Key words: visual art, stimulation of creativity, problem-based teaching, creative capacity, collaborative mentoring

INTRODUCTION

What is creativity?

Anyone who wants to test creativity first must have a definition for it. In the text by E. Paul „The nature of creativity as manifest in its testing” (Torrance, 1988) establishes how creativity defies precise definition, but many different definitions of creativity (and their different approach) still demonstrate common features. One of such features is the creation of something new, originality. This created novelty can have different levels; from the novelty intended for society as the highest level to the novelty intended for an individual who is thinking up a solution to a problem. Also, the novelty can be in artistic, mechanical and theoretical form, and it has to have quality (any kind of novelty does not have to be of a good quality, that is, creative at the same time). Another feature of creativity is that it is the opposite of conformism. Creativity includes original ideas and new ways of viewing a problem, while conformism includes commonness, which is doing what others are already doing. Besides the previously mentioned, there are two more elements which are common to different definitions: „ a creative individual *perceives*, sees, experiences, combines things and phenomena in a new, fresh, unusual way; 2. A creative individual *produces* new, unusual, different ideas and works.“ (Čudina-Obradović, 1990, str. 51) Creativity is according to Barron (1988, according to Arar and Račka, 2003) ability to produce new and appropriate works. New works are the ones that are original and that cause a surprise with the observers of the works, and the appropriate work is the one which is of good quality and which is considered to be significant for solving an important issue. Amabile (1996, according to Bledow, Rosing i Frese, 2013) defines creativity as a process of development of new and useful ideas, and it can be stimulated with specific incentives. Therefore, in order to preserve his special quality and develop creativity, an individual needs appropriate incentive, but also social support, and a significant part of that support should be provided by educational institutions.

In a modern society creativity represents one of the key words in recommendations on the development of national curriculum and education reforms, in which case the development of creativity is considered to be an important goal of education because creative thinking leads towards the development of new ideas and possibilities, practical testing of ideas and the investigation of borders of reality and imagination (Chávez-Eakle, 2009). The stimulation of creative expression that is creativity is an important competence in national curriculums of many European countries and non-European countries which tend to develop

with students, because due to the changes on the labor market repetitive jobs are no longer required. Conversely, the employees are required to show creative approach in solving issues and organizing innovations intellectually (Johnson, 2015). However, educational policy in different countries of the world, as well as in the Republic of Croatia, gives preference to so called STEM disciplines (science, technology, engineering, mathematics) over art subjects, which are marginalized and in terms of schedule which is brought down to minimum. The consequence of such treatment of art is reflected in the development and the stimulation of creativity and giving support to creative students, because art subjects are the ones that develop creative potential with students. In that respect, it causes the state of being contradictory, where, on the one hand creativity is a desirable characteristic which an individual, after finishing his education, should have. On the other hand, educational system does not do much to stimulate the development of creativity. In other words, social needs for creativity are increasingly bigger, and the role of school in the development of creativity is less and less clear (Maksić, 2006).

The term of creativity itself was first studied in the middle of twentieth century under the leadership of a psychologist a Joy Paul Guilforda. Guilford makes the distinction between convergent and divergent thinking, where divergent thinking is the basics of creativity, that is, a more creative person will have more developed divergent thinking. Nevertheless, convergent thinking is necessary for creativity.

Guilford predicted six factors of creativity, four of which belong to divergent thinking, and two of which belong to convergent thinking (Kvaščev, 1981). Divergent factors are:

1. Flexibility – fast tracing of as many relevant solutions/answers as possible
2. Fluency – as many categories as possible, that is types of solutions/answers
3. Originality – production of rare and completely new ideas, unusual solutions
4. Elaboration – an ability to make ideas more appealing by adding details

Apart from the above mentioned factors, convergent factors are also important for development of creativity:

5. Problem sensitivity – an ability to recognize imperfection or improvement
6. Redefining – an ability to abandon old methods of interpretation of familiar subjects

As regards talented children, Ellen Winner says: „These children often create rules within the activity itself and create new, unusual ways of solving issues independently. This means that talented children are, according to the definition, creative, but I want to clearly emphasize the difference between creativity with a small „c“ and a big „C“. Talented children

are usually creative in the above mentioned sense: they make independent discoveries and solve problems in new and unusual ways, but they cannot be creative with a big „C” because by that I mean the transformation of the field of activity in the same way that Jackson Pollock's discarding of paintbrush transformed painting, or in the way 12 musical tones transformed music. Only the adults who have spent at least ten years on mastering certain field of studies can hope to change it forever.“ (Winner, 1996, p. 3) Children have neither knowledge nor experience to be creative in the real sense of the word. Therefore, Irving Taylor suggested creating levels of creativity (Grgurić i Jakubin, 1996). Taylor categorized creativity into five levels: 1. Creativity of spontaneous activity (1 – 6 year.); creativity of designated activity (7– 10 year), creativity of invention (11 – 15 year), creativity of innovation (16 – 17 year), and creativity of creating (18+). When compared to the model of E. Winner, first four levels correspond to the creativity with small „c“, and the last levels correspond to Creativity with a big „C“.

Didactics of visual arts in tutorial schools

Teacher-training colleges are collaborating with schools with the aim to teach students how to use teaching methods in a real classroom environment. These kinds of practices are implemented in schools which gained status of tutorial schools, which means that that status is officially confirmed on the level of the ministry of that specific department. Students of teacher-training colleges accompanied with their leader who is an employee at the college attend those practices. This type of teaching is considered to be the closest to the methodological ideal which is predicted by the theory of didactics of fine arts. The development of creativity is supported by techniques such as „brainstorming” popularized by Alex Osborn, or, „lateral thinking“ (as opposed to „vertical thinking“) by Edward de Bone, which demonstrates thinking as a process that progresses indirectly, „by a roundabout way“, by using distinct associations. In the field of fine arts, the teaching of visual art which is implemented in tutorial schools in the city of Zagreb has two important features: 1. Students are encouraged to avoid routine, that is, stereotypical art figures; 2. Art assignments are based on problem-based teaching. Stereotypical art figures include expression „that has neither originality nor individuality of the author who uses it. Instead, he uses generally assumed, imprudent and inexperienced symbol system for communication (Huzjak, 2000, p. 11). Here, we are referring to stereotypical smiley faces (so called „smileys“), stiff figures with flat arms and legs, a quarter of the Sun in the corner of the paper, birds presented as a line in the shape

of script letter „m“ or flowers with a round pistil and curved petals. „ Children show tendency to develop fixations which are characterized as patterns. They are negative in artistic sense, because they hinder child's act of creativity by making the pattern repeat.” (Grgurić i Jakubin, 1996, p 54) These kinds of drawings are created when some adults want to show their child how to draw. Dobrila Belamarić comments on it: This literally causes „short circuit” which, with its life logic, interrupts established processes and the stream of development of child's consciousness. A child is required to learn how to imitate patterns which are, from his own point of view, vague, strange and dead in essence. It suppresses his inner necessity to express his own view and dissimulates inner processes which must precede artistic expression. In this way, not only does the ability of a child to artistically express himself become weaker and even completely disappear, but all cognitive and perceptive functions become weaker.“ (Belamarić, 1986, p. 83) Teachers are to blame for these patterns, not students.

Problem-based teaching promoted at the classes of visual art implies that a theoretical art problem is the origin of realization of art assignment. These are concepts such as different types of colors, color contrasts, different types of lines or different kinds of compositions. Concepts should be pointed at and recognized in nature and in society which surrounds us (for example, nature rhythm, rhythm inside of us and around us, etc.). In addition, concepts should be displayed on works of art, on the ones where these concepts are used in „ the most readable“ and the most noticeable manner and which are used in the best possible way. The idea that theoretical and practical work intertwine during the process of teaching visual art is supported by Bogomil Karlavaris: „ A child must notice artistic shapes in order to enjoy in them. (...) In order to achieve such a clear perception, it is necessary to make distinction between main elements which make up the entire shape – a work of art. Those are lines, colors, masses and their interrelations, and other art elements – all of them are referred to as individual units, as cooperation factors in one totality. (...) Students' attention must be directed towards concrete elements of work, such as, for example, subtle gradations of lines, light, colors, etc.“ (Karlavaris, 1970, p. 8-9)

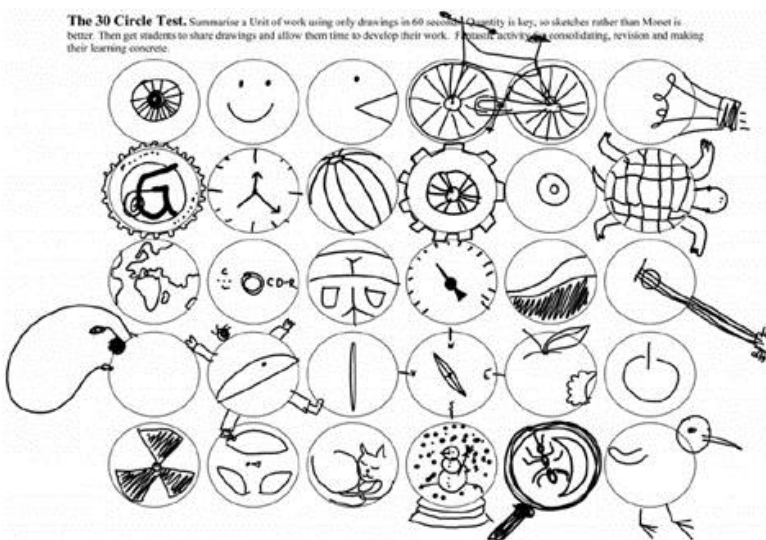
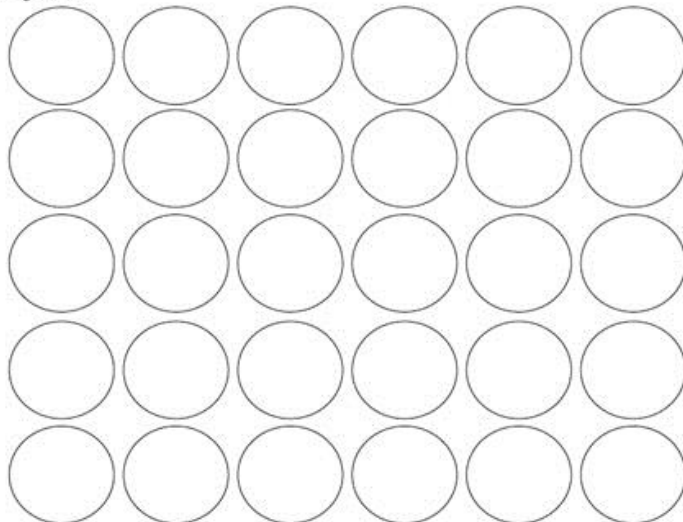
Measurement of creativity

Since creativity is often regarded as a type of process of thinking or as a set of cognitive features, the research of general creativity is conducted most often by using cognitive tests or by tests of personality traits (Arar i Rački, 2003). Among the first tests of creativity was also the one that was established by Guilford, so called „ a paper clip test“. It is

necessary to think of as many uses as possible for an everyday object, for example „a paper clip“. The test measures divergent thinking according to categories: 1. Fluency – the number of functions a person manages to come up with; 2. Originality –how uncommon those functions are (“router restarter” is more unusual than „holds papers together“); 3. Flexibility – how many areas your answers cover (for example, cufflinks and earrings are fashionable accessories, so they belong to the same field); 4. Elaboration – the level of details in responses („ it keeps headphones from getting tangled up“ is worth more than „bookmark“).

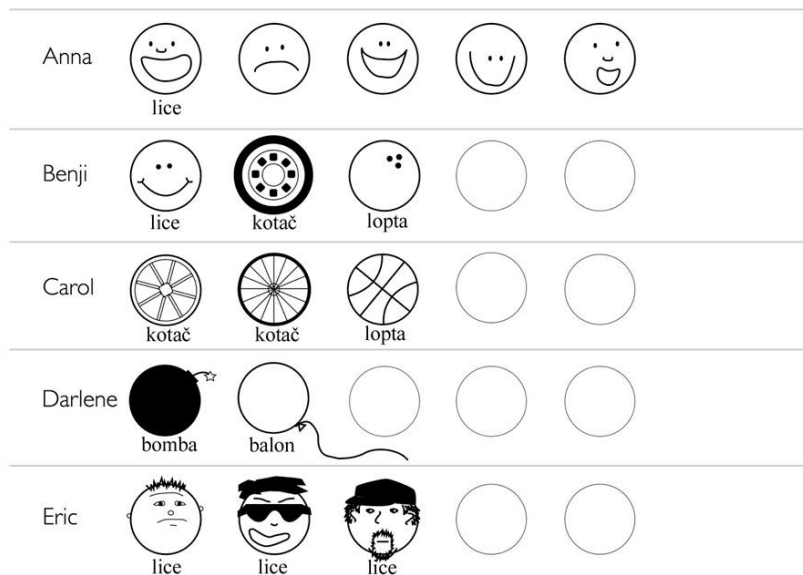
Bob McKim's test of creativity known as „Circle test“ (picture 1) consists of thirty circles, which should be filled with any content in three minutes. McKim explained that the people's strong need to draw stereotypical *smileys* in circles influenced the creation of the test.

The 30 Circle Test. Summarise a Unit of work using only drawings in 60 seconds. Quantity is key, so sketches rather than Monet is better. Then get students to share drawings and allow them time to develop their work. Fantastic activity for consolidating, revision and making their learning concrete.



Picture 1: McKim's test, empty and filled in

The possibility of interpretation of this test was suggested by Peter Nilsson (Nilsson, 2012), (picture 2):



Picture 2: Peter Nilsson, the suggestion of interpretation of „a Circle Test“

Anna has the biggest number of drawings, although those are all faces; she has the biggest *fluency*.

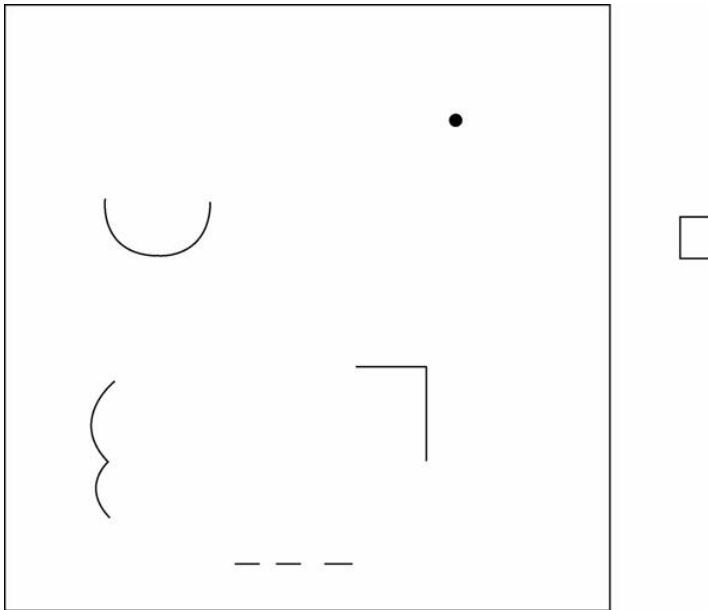
Benji has the biggest number of different types of responses; he has the biggest *flexibility*.

Carol drew wheels and a ball nicely, but she does not get points.

Darlene has only two responses, but she is the only one who has a balloon and a bomb; she demonstrates the biggest *originality*.

Edward drew only three faces, but with more details than the others; he has the highest *elaboration*.

Probably the most popular test of creativity was developed by Klaus Urban and Hans Jellen from the University in Hannover, and it is called TCT-DP test (*Test for Creative Thinking – Drawing Production*).



Picture 3: Urban and Jellen, TCT-DP test of creativity

The test was developed with the aim to be reliable regardless of the culture where the respondent originates from and to be applicable in different age groups. It can be applied in the population whose age range from 5 to 95, and the respondents have 15 minutes to make a drawing. Respondents are required to finish the drawing. Paper for drawing requires a frame and six art elements which serve as a starting point from where the respondents continue creating their own works. Evaluation of drawings is done according to the following 11 criteria (Urban, 2005):

1. *Continuations (Cn)*: A respondent uses and extends six art elements.
2. *Completion (Cm)*: A respondent fills in the existing art elements with basic art elements such as a line or geometrical shapes.
3. *New elements (Ne)*: New shapes, symbols or elements are used besides the existing art elements.
4. *Connections made with the line (Cl)*: The line connects elements in the picture.
5. *Connection between elements makes the theme of the drawing (Cth)*: The elements are integrated so as to establish a certain theme.
6. *Drawing outside the square frame dependent on art element (Bfd)*: Art element which is located outside the square frame is used in a drawing.
7. *Drawing outside the square frame independent on an art element (Bfi)*
8. *Perspective (Pe)*: A respondent creates tri-dimensional picture

9. *Humor and affectivity* (Hu): The drawing causes humorous response or emotional reaction to the expressions the respondent uses.

10. *Unconventionality* (Uc): It is divided into four criteria: (a) the respondent manipulates with the material, that is, with paper, (b) the respondent uses abstract elements or themes, (c) the respondent uses any figures, signs and/or symbols, (d) a respondent does not transform given art elements into conventional elements (for example, he does not transform a circle into the Sun).

11. *Speed* (Sp): Time limit is not explicitly given, but time is included in evaluation process.

Although the exact scale of evaluation is not mentioned, the researchers tend to use a scale from 1 to 6 for evaluation of each of the mentioned components, and the final result is obtained by summing up all the components (Chae, 2003). The rules of TCT-DP test have been established for the students in Germany, Korea, and Poland on big samples of a few hundreds and thousands of respondents who belong to different age groups (Urban, 2005). The research has shown that the number of points on the test increases depending on the age up to 11 or 12, after which the results remain relatively constant. That kind of relation between years and marks on the test is consistent with the natural course of development of children's artistic expression, and Urban (2005) considers that the test is a good technique for evaluation of the development of children's artistic expression in relation to expected rules.

Urban i Jellen (1989) applied the test in many countries of Europe, Asia, Africa and Northern America and they proved that the test results are not adequate for the respondents' culture. The rules of TCT-DP test for students in Republic of Croatia have not been established yet. Gagić, Japundža-Milisavljević i Đurić-Zdravković (2015) used TCT-DP test in order to investigate the effect of visual stimulation on the creativity of children with mild intellectual difficulties and they have demonstrated that creative artistic expression can be increased by using visual stimulation. After seeing the photographs connected to the theme of a drawing, the respondents demonstrated higher level of creativity than the one measured before visual stimulation. Therefore, the test can be used for measuring artistic creativity in experiments, but the rules of the test for the students of Republic of Croatia are yet to be established and compared with the rules in other countries.

OBJECTIVE, PROBLEMS AND HYPOTHESES OF THE RESEARCH

The research objective

The objective of this research was to determine the influence of implementation of practices in Methodology of visual art in elementary schools - that is, the influence of implementation of techniques of art and problem-based teaching on the stimulation of students' creativity.

Problem-based issues

P1: Is there a statistically significant difference in creativity between students of tutorial and non-tutorial schools on the level of the fourth grade?

P2: Is there a statistically significant difference in creativity between students of tutorial and non-tutorial schools on the level of the eighth grade?

P3: Is there a statistically significant difference in creativity between students of tutorial and non-tutorial schools on the level of the total number of respondents?

P4: Did the students who attend tutorial schools achieve better results in the test of creativity than students who attend non-tutorial schools, on the level of the fourth grade?

P5: Did the students who attend tutorial schools achieve better results in the test of creativity than the students who attend non-tutorial schools, at the level of the eighth grade?

P6: Did the students who attend tutorial schools achieve better results in the test of creativity than the students who attend non-tutorial schools, on the level of the total number of respondents?

Hypotheses

H1: There is a statistically significant difference in creativity between students of tutorial and non-tutorial schools at the level of the fourth grade.

H2: There is a statistically significant difference in creativity between the students of tutorial and non-tutorial schools at the level of eighth grade.

H3: There is a statistically significant difference in creativity between the students of tutorial and non-tutorial schools on the level of total number of respondents.

H4: The students who attend tutorial schools will achieve better results in the test of creativity than the students who attend non-tutorial schools, at the level of fourth grade.

H5: The students who attend tutorial schools will achieve better results in the test of creativity than the students who attend non-tutorial schools, at the level of eighth grade.

H6: The students who attend tutorial schools will achieve better results in the test of creativity than students who attend non-tutorial school, at the level of total number of respondents.

THE METHODOLOGY OF THE RESEARCH

The respondents

The research was conducted in six elementary schools in the city of Zagreb, in three tutorial (which collaborate as workshops of teacher-training college for the council Practices in methodology of visual arts) and in three non-tutorial schools. The total sample of respondents is $N = 439$ students, of which $n = 155$ students are in tutorial schools, and $n = 284$ students in non-tutorial schools. The total sum of students of the fourth grade was 241 (from tutorial schools there were 93 students, and from non-tutorial schools, there were 148 students), at the age of 9 and 10. The total number of students of the eighth grade was 198 (62 from tutorial, and 136 from non-tutorial), at the age of 13 and 14. The fourth grade was chosen because it is the final grade of the cycle of class teaching, and the eighth grade was chosen because it is the final grade of subject teaching, and, at the same time, the end of elementary education. The sample is not representative, but it is very indicative.

The type, the method, the technique and instruments used for the research

The type of the research is both quantitative and transversal. The research method is causal experimental: control (CG) and experimental groups (EG) have been used. The technique of research is the content analyses. The instrument for collecting data was Urban's and Jellen's Test -*Test for Creative Thinking - Drawing Production (TCT-DP)*.

Research variables

Independent variable was the type of school where the research was conducted - tutorial and non-tutorial school. Dependent variable represented the level of success that is achieved points in the test of creativity of a drawing type.

The research process

The research was conducted in spring 2016 in six elementary schools in Zagreb. The research was conducted by the authors of the research and male and female teachers who teach students who were respondents. Students received a paper with the copy of standard template of TCT-DP test, and the teachers read previously prepared instructions in order to avoid individual differences in giving instructions. The test consists of six given elements (dots and hyphens), and respondents are required to draw anything they want and in the way they want in 15 minutes by using a regular pencil. The drawings are anonymous, and only the

grade and the school where the drawing was created were noted down. Scoring was conducted according to the instructions for scoring the test that were taken from the text by Klaus Urban, one of the authors of the text). Scoring was conducted by a three-member commission, which consists of three experts in the field of art didactics: Saša Živković from the Department for education of teachers and pre-school teachers at the Faculty in Zadar and the authors of research Miroslav Huzjak and Marijana Županić Benić from the teacher education faculty of the University in Zagreb.

RESULTS PROCESSING

The tests of creativity were scored according to 11 criteria, by using a 1-6 point scale for each element. All the elements are summed up into the final result, which can be in the range of 11 to 66 points. When all the tests have been scored, they are divided into 6 categories 1) 11-19 points: 2) 20 -28 points: 3) 29 - 38 points: 4) 39- 48: 5) 49 - 57 points and 6) 58 - 66 points. These categories are used as dependent variables and they are written in contingency table. The results obtained from the test of creativity were processed using chi-square test (X^2) for testing of variable independence, that is, the significance of group differences in the distribution of data. Online chi-square calculator was used for calculations.

THE RESULTS OF THE RESEARCH AND THE DISCUSSION

In the presented contingency tables, the first number is the amount of observed frequency (the number of students in the category with that particular number of points), and the other number written inside the brackets is the amount of expected, theoretical frequency.

Table 1: *contingency table for fourth grade*

4th grade	Points 1	Points 2	Points 3	Points 4	Points 5	Points 6	Σ
Tutorial	4 (10)	13 (23,2)	24 (34,3)	29 (16,2)	16 (6,56)	7 (2,70)	93
Non-tutorial	22 (16)	47 (36,8)	65 (54,7)	13 (25,8)	1 (10,4)	0 (4,30)	148
Σ	26	60	89	42	17	7	241

For the presented data values (table 1), X^2 with Yates's correction is 59.837. The number of degrees of freedom is $df=5$, and probability is $P=0.001$. The border for confirming the hypothesis for $P=0,000$ is 20.515.

Table 2: contingency table for the 8. grade

8th grade	Points 1	Points 2	Points 3	Points 4	Points 5	Points 6	Σ
Tutorial	2 (15)	8 (15,3)	36 (22,5)	12 (6,58)	2 (1,57)	2 (0,939)	62
Non-tutorial	46 (33)	41 (33,7)	36 (49,5)	9 (14,4)	3 (3,43)	1 (2,06)	136
Σ	48	49	72	21	5	3	198

For the presented values (table 2), X^2 with Yates's correction is 36,349. The number of degrees of freedom is $df=5$, and probability is $P=0.001$. The border for confirmation of hypothesis for $P=0,000$ is 20.515.

Table 3: contingency table for the total sample

4th + 8th grade	Points 1	Points 2	Points 3	Points 4	Points 5	Points 6	Σ
Tutorial	6 (26,1)	21 (38,5)	60 (56,8)	41 (22,2)	18 (7,77)	9 (3,53)	155
Non-tutorial	68 (47,9)	88 (70,5)	101 (104)	22 (40,8)	4 (14,2)	1 (6,47)	284
Σ	74	109	161	63	22	10	439

For the presented values (table 3), X^2 with Yates's correction is 87,392. The number of degrees of freedom is $df=5$, and the probability is $P=0.001$. The border for confirmation of the hypothesis for $P=0,000$ is 20.515.

Chi-square test demonstrated that the difference between the expected and observed frequencies is so big that there is 99% of probability that this is not accidental, but that the independent variable (the status of school) had an influence on the result of the creativity test.

Based on the result of chi-square test, we conclude:

Hypothesis H1: „There is a statistically significant difference in creativity between the students of tutorial and non-tutorial schools on the level of fourth grade.” it is **confirmed** based on the calculation $X^2 = 59.837$ ($X^2 > 20.515$), $df = 5$, $P < 0,001$, that is, with the level of certainty of 99%.

Hypothesis H2: „There is a statistically significant difference in creativity between the students of tutorial and non-tutorial schools on the level of 8.grade.” It is **confirmed** based on the calculation $X^2 = 36.349$ ($X^2 > 20.515$), $df = 5$, $P < 0,001$, that is, with the level of certainty of 99%.

Hypothesis H3: „There is a statistically significant difference in creativity between the students of tutorial and non-tutorial school on the total number of respondents.” it is

confirmed based on the calculation $X^2 = 87.392$ ($X^2 > 20.515$), $df=5$, $P < 0,001$, that is, with the level of certainty of 99%.

We have concluded that there is a statistically significant difference between tutorial and non-tutorial schools in the level of creativity of their students. With the aim to test which students were more successful in solving the test of creativity, arithmetic means of the achieved scores (\bar{x}) were calculated. The results are presented in the table 4: in groups, T stands for tutorial, and NN stands for non-tutorial groups.

Let us remind you that, for the sake of easier calculation, earned points in TCT-DP test are divided into six categories: from “points 1” to points 6”. If, for example, in tutorial group of the fourth grade, twenty four students (out of 93 students) had entered the category “points 3”, then 24 would have been multiplied by three points, which equals 74 (24x3 points=72) (table 4, the first line).

Table 4: *achieved points in the test and arithmetic means*

Skupina	n	Points 1	Points 2	Points 3	Points 4	Points 5	Points 6	Arithmetic means \bar{x}
T. 4r	93	4	26	72	116	80	42	3,66
NT 4r.	148	22	94	195	52	5	0	2,49
T 8r.	62	2	16	108	48	10	12	3,16
NT 8.	136	46	82	108	36	15	6	2,15
T 4+8r	155	6	42	180	164	90	54	3,46
NT 4+8r.	284	68	176	303	88	20	6	2,33

From the presented values it can be observed that arithmetic means of the achieved means in tutorial schools are always higher than arithmetic means in non-tutorial schools, at all levels - fourth grade, eighth grade and the entire sample of respondents.

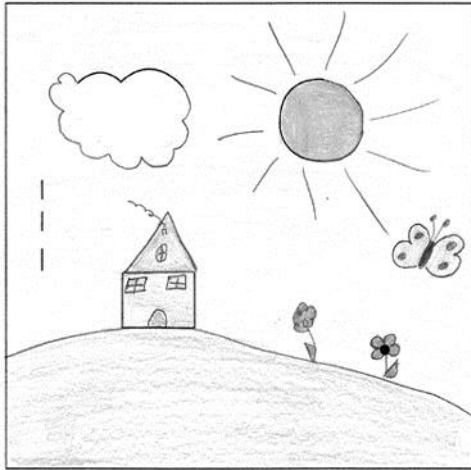
We conclude:

Hypothesis H4: „The students who attend tutorial schools will achieve better results in the test of creativity than the students who attend non-tutorial schools, on the level of 8. grade” is **confirmed**.

Hypothesis H5: „The students who attend tutorial schools will achieve better results in the test of creativity than the students who attend non-tutorial schools, on the level of 8. grade” is **confirmed**.

Hypothesis H6: „The students who attend tutorial schools will achieve better results in the test of creativity than the students who attend non-tutorial schools, on the level of the total number of respondents” is **confirmed**.

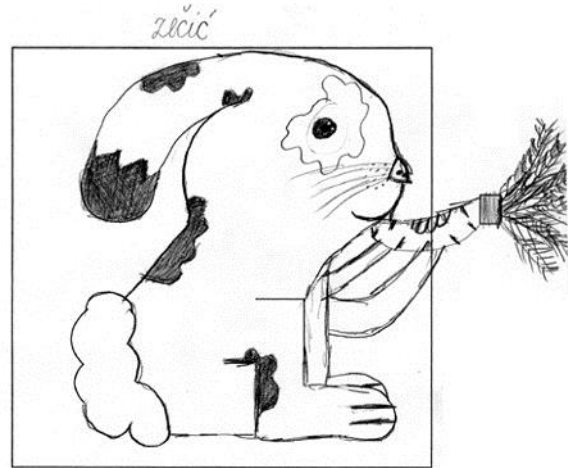
Comparative analysis of the tests which were successfully and unsuccessfully solved



ZALAZAK SUNCA

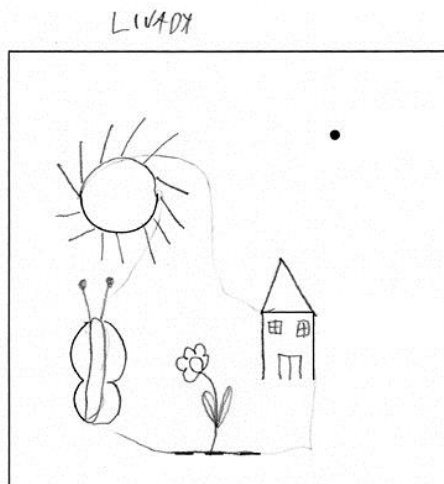


4th grade, non-tutorial school, point 1, work 1



zicic'

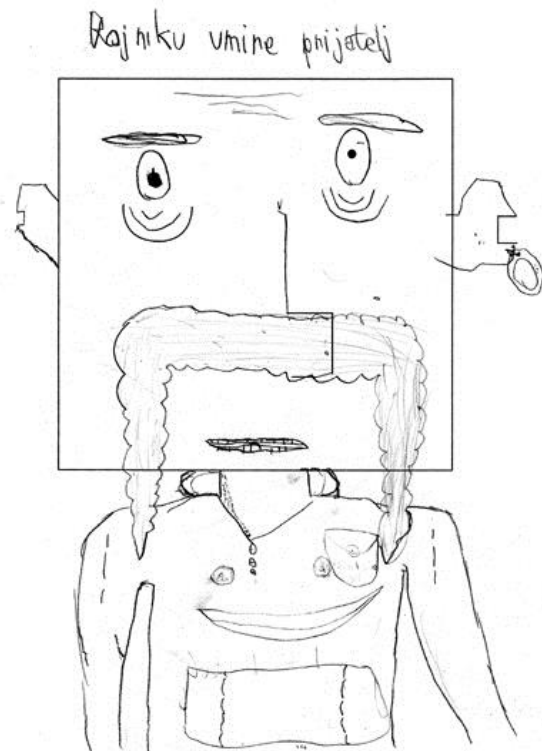
4th grade, tutorial school, points 6, work 2



LIVADY

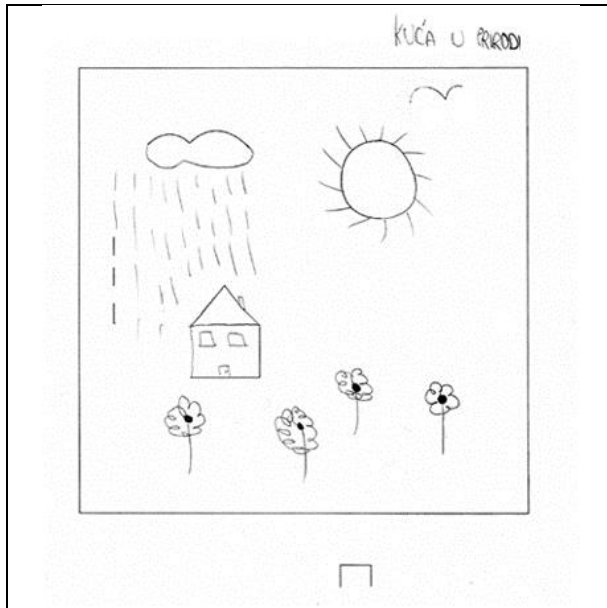


4th grade, non-tutorial school, point 1, work 3

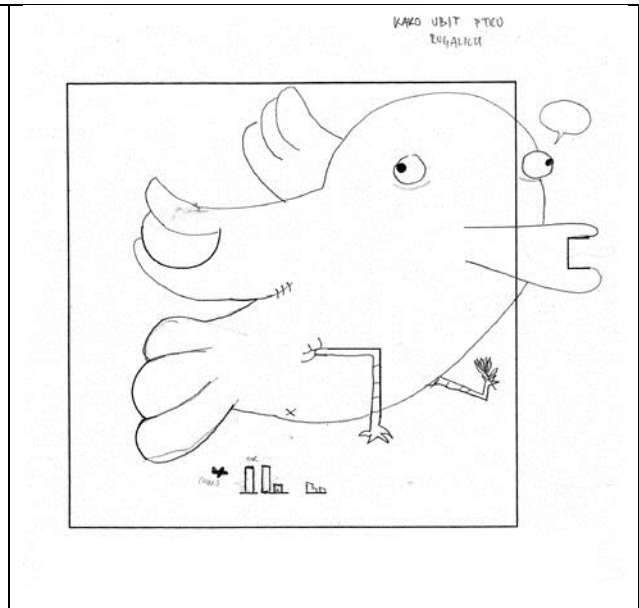


Dajniku umine prijatelji

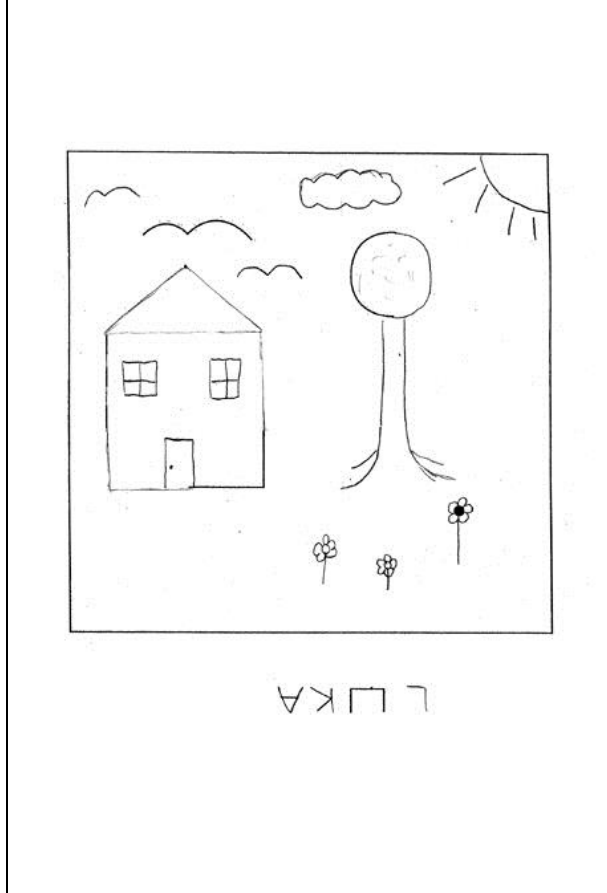
4th grade, tutorial school, points 6, work 4



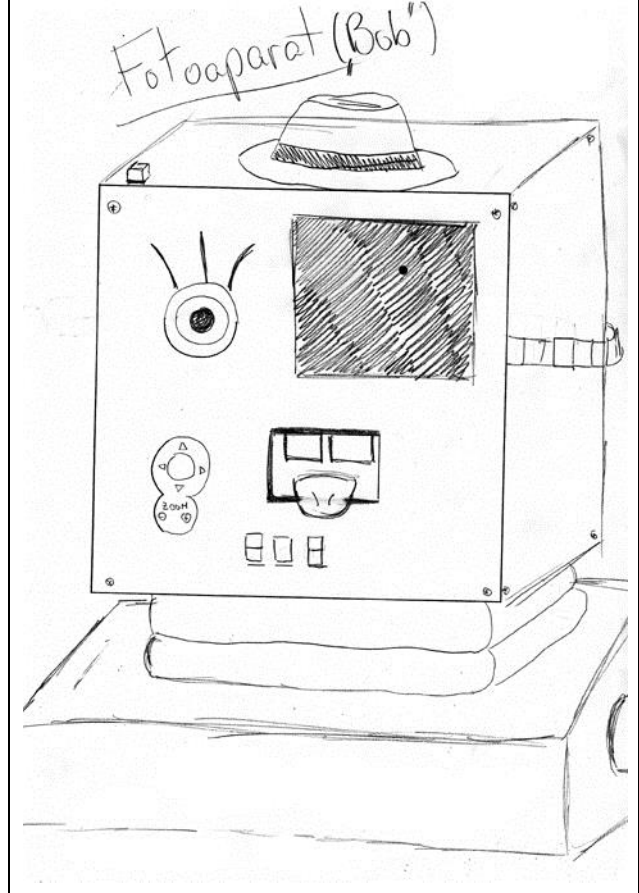
8th grade, non-tutorial school, point 1, work 5



8th grade, tutorial school, points 6, work 6



8th grade, non-tutorial school, point 1, work 7



8th grade, tutorial school, points 6, work 8

In order to compare the tests which were successfully and not so successfully performed, the extremities of the quality were chosen so as to achieve better visibility of criteria. From the category of tests that were not so successfully performed are the ones from the lowest group “Points 1”, that is , the ones in the range of 11-19 points; from the category of tests that were successfully performed, the ones from the highest group Points 6 were chosen, that is in the range of 58 - 66 points. It can be observed that the tests that initiate the lowest level of creativity are solved in almost the same way: the basis of the drawing is imitation, it lacks any form of originality, only the simple, first associations are used, based on usual stereotypical images a house, a bird, a butterfly, a cloud, the Sun with its rays and “flowers” (works 1, 3, 5 and 7). Overall, it is surprising how big is the number of drawings which were all made in the same way, with the minimum effort and the maximum of stereotype. They do not come out of the square frame. The drawings in the test that were created by the students of the eighth grade and which belong to the category of drawings that were not performed so successfully are not much different in quality from the drawings made by students of the fourth grade.

On the other hand, a small number of drawings which earned maximum points show a high level of inventiveness and unusualness (high level of originality). Each work contains different type of artistic answer (high flexibility) and distant associations (high fluency). They all come out of the square frame; outer element is fit into a drawing. At some places, the whole paper has been used (works 4 and 8). In most drawings, the given art elements are interconnected and they fit into the drawing in such a way that it is difficult to find them. Many new elements have been added, and all of these drawings abound with multiple details (high elaboration), shapes overlap on each of them, and on the work 8, geometrical perspective can be seen. Students put an effort to make these drawings, and the name of the work 4 “A soldier’s friend is dying” belongs to the category which we would not expect from the student of that age.

Conclusion

We conclude that the status of tutorial school, that is regular collaboration with the faculty, through problem-based teaching, through inventiveness in creating art assignments and through increasing public awareness of the issue of harmfulness of stereotypical artistic expression, has a positive impact on the development of creativity with students. Reliability of this research would be higher if it was conducted in more schools and on a bigger sample, which is the guideline for future research of this type.

BIBLIOGRAPHY

- Belamaric, D. (1986). *Dijete i oblik. Likovni jezik predškolske djece*. Zagreb: Školska knjiga.
- Bledow, R., Rosing, K., Frese, M. (2013). A dynamic perspective on affect and creativity. *Academy of Management Journal*, 56(2), 432-450.
- Chae, S. (2003). Adaptation of a picture-type creativity test for pre-school children. *Language Testing*, 20(2), 179-188.
- Chávez-Eakle, R. A. (2009). Creativity and personality. In E. Villalba (Ed.) *Measuring creativity*. Luxembourg: Publications Office of the European Union.
- Čudina-Obradović, M. (1990). *Nadarenost. Razumijevanje, prepoznavanje, razvijanje*. Zagreb: Školska knjiga.
- Gagić, S., Japundža-Milisavljević, M., Đurić-Zdravković, A. (2015). Examples from visual surroundings as an incentive for children with mild intellectual disability to express their creativity in the art domain. In: *Hrvatski časopis za odgoj i obrazovanje*, 17, 41-64.
- Grgurić, N., Jakubin, M. (1996). *Vizualno-likovni odgoj i obrazovanje*. Zagreb: Educa.
- Jellen, H. G., Urban, K. K. (1989). Assessing creative potential world-wide: The first cross-cultural application of the Test for Creative Thinking—Drawing Production (TCT-DP). In: *Gifted Education International*, 6(2), 78-86.
- Johnson, D. (2015). *Teaching outside the lines: Developing creativity in every learner*. CA: Corwin: Thousand Oaks.
- Karlavaris, B. (1970). *Estetsko procjenjivanje u osnovnoj školi*. Beograd: Umetnička akademija u Beogradu.
- Kvašček, R. (1981). *Psihologija stvaralaštva*. Beograd: Zavod za udžbenike i nastavna sredstva.
- Maksić, S. (2006). *Podsticanje kreativnosti u školi*. Beograd: Institut za pedagoška istraživanja.
- Nilsson, P. (2012). Four Ways to Measure Creativity. In: *Sense and Sensation. Writing on Education, Creativity, and Cognitive Science*.
<http://www.senseandsensation.com/2012/03/assessing-creativity.html>
- Torrance, E. P. (1988). *The nature of creativity as manifest in its testing*. U: Sternberg, R. J. (ur.). *The nature of creativity. Contemporary psychological perspectives*. Cambridge: Cambridge University Press.

Associate professor, M.S. **Miroslav Huzjak**,
University of Zagreb, Faculty of Teacher Education
Savska c. 77, 10000 Zagreb
miroslav.huzjak@ufzg.hr

Marijana Županić Benić, Lecturer
University of Zagreb, Faculty of Teacher Education
Savska c. 77, 10000 Zagreb
marijana.zbenic@ufzg.hr

Mjerenje kreativnosti u metodici likovne kulture u osnovnoj školi

U suvremenom društvu, kreativnost je jedna od najpoželjnijih sposobnosti koje pojedinac posjeduje u svim područjima ljudskog djelovanja. S druge strane, obrazovna politika i nacionalni kurikulumi u većini zemalja svijeta, umjetničke predmete marginaliziraju po važnosti, dok se prednost daje STEM (engl. science, technology, engineering, mathematics) disciplinama. Iako je, prema mnogim obrazovnim standardima, kreativnost jedna od ključnih kompetencija, u nastavničkoj praksi i dalje se vrednuju rutinske više nego kreativne aktivnosti. Upravo umjetnički predmeti u obrazovanju razvijaju u pojedincu kreativni (stvaralački) potencijal, ali to uvelike ovisi i o učitelju/nastavniku, o njegovom metodičkom pristupu i kompetencijama u okviru profesionalnog djelovanja. Stoga smo proveli empirijsko istraživanje u mentorskim (za Metodiku likovne kulture) i nementorskim osnovnim školama. Očekivalo se da se kroz redovitu suradnju s fakultetom, kroz likovnojezičnu problemsku nastavu, kroz inventivnost u osmišljavanju likovnih zadataka i kroz osvještavanje problematike štetnosti stereotipnog likovnog izražavanja, utječe na razvoj kreativnosti kod učenika. Između većeg broja provjerenih testova kreativnosti, upotrebljen je Urban - Jellen „The Test for Creative Thinking - Drawing Production (TCT-DP)“, koji se temelji na crtačkoj aktivnosti. Zanimalo nas je, postoji li statistički značajna razlika između mentorskih i nementorskih škola u rješavanju testa, kojim se ispituje stupanj kreativnosti. Stupanj značajnosti razlike između kontrolne i eksperimentalne skupine statistički je utvrđen hi-kvadrat testom. Istraživanje je provedeno u osnovnim školama na području Grada Zagreba, na uzorku koji je obuhvaćao učenike četvrtih i osmih razreda. Rezultati istraživanja ukazuju na mogući utjecaj suradnje učitelja mentora sa sveučilišnim nastavnicima i studentima učiteljskih studija u okviru Metodike likovne kulture na kreativnost učenika.

Ključne riječi: likovna kultura, poticanje kreativnosti, problemska nastava, stvaralaštvo, mentorska suradnja