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CREATIVITY IN THE ROMANIAN SCHOOL ENVIRONMENT

Ph.D. Candidate Dana AMĂRĂZEANU,
Doctoral School in Psychology and Educational Sciences, University of Bucharest, ROMANIA
E-mail: danaamarazeanu@yahoo.com

ABSTRACT

In today's global context, creativity is a social need, being the only inexhaustible resource on the planet and its only hope. The school, as the main educational agent, has the responsibility to prepare the new generations, to form autonomous and creative personalities, able to anticipate the future, transform the present in the direction of expectations and resolve the situation together with others. To master this special mission, modern education provides an action-oriented methodology, promoting interactive methods that require mechanisms of thought, intelligence, imagination and creativity. In this approach, it must be taken into account both the fact that every child has a creative potential and the fact that this potential differs from one person to another, and its development is done differently, even under the action of the same techniques and stimulation methods. This article presents a study, based on the Torrance Test of Creative Thinking, conducted in order to determine the index of creativity in adolescents, assessing the factors of creativity, and identifying the variables that influence it.

Keywords: *creativity; adolescence; school; educational process; interactive methods;*

INTRODUCTION

This article presents the conclusions of the research carried out in the doctoral thesis "Developing creativity in adolescents through the use of interactive methods", which was conceived as an argument in favor of modernizing Romanian pre-university education, adapting teaching-learning methods to the requirements and needs of current and future society.

We started from the observation that the Romanian school is not yet connected to the needs of the contemporary world. It does not prepare young people for the society of the present, but especially of the future, in which inventiveness, free and nonconformist thinking, adaptability are absolutely indispensable attributes. In the Romanian school, traditional teaching-assessment methods still predominate, the aim is to acquire skills according to outdated programs, and the creativity of students, which could be objectified in attributes such as those listed above, suffers.

The child enters the school with a great capacity to imagine and with a great availability to make known the fruits of this imagination. As he progresses in school life, these manifestations diminish, this enthusiasm fades, and conformity and rigidity take their place.

1. IMPERATIVES FOR CHANGE IN THE CONTINUING TEACHER TRAINING

The problem of creativity is a timely issue, creativity is imposed as a social need, being the only inexhaustible resource of the planet and its only hope.

Modern life, with its socio-economic changes and turmoil, involves the development of creativity and putting it at the service of human progress, material and spiritual well-being of mankind. The challenges of the contemporary world require creative solutions. Creative adaptation is the only way to keep up with change.

The educational process is not so much about training creators in the narrow sense of this concept, whose products are original, absolutely new, of value to society. This field is mainly about the formation and cultivation of knowledge skills (intellectual and practical). Therefore, the emphasis in the educational process is not on the students' product as social value, but on the psychological value, the suppleness, the elegance, the note of originality in the solutions (methods) used to solve the problems, the learning tasks. Such performances require interventions in the very methodology of the learning activity, creating an atmosphere conducive to the emotional participation of students in the learning process, which frees children from a certain state of tension, fear, lack of self-confidence.

In the methodological and scientific research carried out in the paper "Developing creativity in adolescents through the use of interactive methods" I looked at the influence that interactive teaching has on the creative potential of adolescents, potentially supported and stimulated by the introduction of a creativity development program. This program aimed to unlock and develop the creative imagination of adolescents, but also their motivation for the formation of productive, transferable and autonomous learning styles. We tried to highlight, through research, the impact that methods, procedures, interactive techniques have on students' divergent thinking, creative imagination and creative attitudes in general.

The choice of one or another of the methods that can release and stimulate the creative potential of the individual must be made according to purpose and context.

It is absolutely certain that there will never be a “guide to creativity, thus compiled and indexed that we can open it to a certain chapter to know what we have to do or think about in the next stage. However, there are general guidelines and principles that can be applied in many, or perhaps even most, creative issues.” (Moore, 1975, p. 158).

The research was conducted on a population of adolescents, because at this stage, young people are concerned with self-knowledge, discovering their identity and gaining independence, are more confident in themselves, in their strengths and judgment, are no longer dependent on friends and opinions and this aspect allows them a unique development, in accordance with their own strengths and aspirations.

Adolescence is the age of learning, of the penetrating mind, of the thirst for knowledge, when all the motivational, volitional, affective forces are put in the service of personal growth on all levels, and most adolescents leave this period with a "mature and healthy body and lust for life” (Papalia, Olds, & Feldman, 2010, p. 371).

The physical, mental and personality characteristics acquired during adolescence allow the development of creativity.

A modern, well-designed education allows the initiative, spontaneity and creativity of the students, but also their direction, their guidance, the role of the teacher gaining new values, overcoming the traditional perspective through which he/she was a provider of information. In organizing a student-centered education, the teacher becomes a co-participant

with him in the activities carried out. He accompanies and guides the child on the road to knowledge.

The use of interactive teaching-learning methods in the didactic activity contributes to the improvement of the quality of the instructive-educational process.

Interactive methods are modern ways of stimulating learning and personal development from an early age, they are teaching tools that promote the exchange of ideas, experiences, knowledge. Interactivity involves learning through communication, through collaboration, produces a confrontation of ideas, opinions and arguments, creates learning situations focused on the availability and willingness of students to cooperate, their direct and active involvement, mutual influence within micro-groups and social interaction for the members of a group.

The work "Developing creativity in adolescents through the use of interactive methods" includes two studies conducted to determine the creative potential in adolescence. The research focuses on two dimensions:

- highlighting the level of creativity in adolescent students and the factors that may influence its manifestation
- validation of a counseling program that aims to develop the creative resources of adolescents. The activities carried out within the program include objectives derived from the results obtained from the studies carried out, and were performed in the context of preparing for a school competition that involves a lot of fantasy and originality.

The results of the studies highlight issues that apply to all adolescents:

- Creativity is a characteristic of every teenager
- Creativity encompasses aspects related to the fluidity, flexibility and originality of thinking
- variables such as: gender, age and profile followed influence the creative potential of each subject

In this work we have analyzed psychological aspects of creativity in adolescents, highlighting some factors that belong to the educational context, the context in which the topic is addressed, but also the research conducted.

The research reveals the low level of creative potential in participating adolescents and the need for interventions to develop it. We came to this conclusion by comparing the average score on creative attitudes, obtained by our group of subjects, with the average obtained after conducting the study on a group of 120 inventors. (Roco, Stimularea creativității tehnico-științifice, 1985, p. 31)

The results obtained from the statistical processing highlighted important elements in relation to some of the variables taken into account:

- creativity index, score corresponding to creative attitudes
- gender, age, profile frequented
- factors of creativity: fluidity, flexibility, originality

Following the analysis of the results, it was noticed that the students attending a humanities profile are more creative than their peers from the science profile. This has led us to question whether more creative students choose a humanistic profile, or whether attending a humanistic profile highlights the creative potential of adolescents. A new study, which would provide the answer to this question, could highlight important elements for the instructive-educational process in our country. If it turns out that in the humanities profile, adolescents have the opportunity to enhance their creative endowment, perhaps it would be

useful and important to see how this is achieved - if the program is favorable, or if the working methods, teaching-learning are more open, etc., in order to implement the respective elements in the didactic practice from the science profile.

Below we present one of the mentioned studies, as it appears in the work "Developing creativity in adolescents through the use of interactive methods".

2. TORRANCE TEST OF CREATIVE THINKING - FIGURAL FORM. (ELABORATED BY MARGARETA DINCĂ)

TEST DESCRIPTION

The Torrance Test of Creative Thinking allows you to evaluate two forms of creativity, figural and verbal. The verbal test contains seven activities - stimulus, and the figural one comprises three sets of activities - stimulus, offering interpretive possibilities superior to the ages of over seven years. (Dincă, 2001)

In our approach we used a variant of the Torrance Test of creative thinking - the figural form, for teenagers (14-18 years old), elaborated in 1994 by the scientific researcher Margareta Dincă. The test consists of three activities:

- activity 1: building the picture - starting from a form - stimulus, the subjects have to build a picture or an object including the given figure, at the end associating a name or a title. Subjects have 10 minutes to complete the activity.
- activity 2: completing the drawing - adding lines to the figures - stimulus, some objects or drawings will be sketched, to which titles will be associated. It is not necessary to complete all the drawings. Working time is the same as in the previous activity.
- activity 3: parallel lines - within 10 minutes as many objects or pictures will be drawn starting from the pairs of straight lines presented and titles will be added.

Using this test allows you to measure creative performance through six variables that represent operational variables. Fluency, flexibility, originality and elaboration are variables that are defined in the sphere of cognitive processes, resistance to premature closure, defined at the level of perception, and the capacity of semantic abstraction is defined at the level of verbal originality.

Figural originality indicates the independence of reasoning, the integration of various elements in the same perceptual field, the ability to produce independent ideas in the usual established sense.

Figural fluency indicates the speed and ease of association between images, the ability to produce a large number of ideas, words, etc.

Figural flexibility highlights the ability to restructure thinking in relation to new situations, ease of transfer, the ability to produce different categories of ideas, to change one category with another using images or words, and the ability to use certain strategies.

Figural elaboration represents the ability to combine and transform data, the ability to concretely realize the original, new idea.

Resistance to premature closure measures the ability of perceptual resistance to the stimulus-induced figure, highlighting the extent to which the subject is independent of perceptual learning. The capacity for semantic abstraction is the capacity for abstract-verbal interpretation of the figural. (Dincă, 2001)

In addition to the six creativity factors presented above, the test also uses a list of creative traits, which represent a qualitative assessment of performance. This list includes 13

categories, each category being considered as a bonus that will be added to the grade obtained in fluency, originality, elaboration and resistance to closure.

These characteristics are not equal in importance with the factors of creativity, but they are added to the information obtained through the Torrance Test of creative thinking - the figural form, regarding the creative potential. The emergence of these indicators has been seen as a feature that can be used to develop instructional methods and an appropriate curriculum.

The presence of a creative feature is indicated, on the scoring sheet, by a plus sign (+); if it occurs once or twice, or by two pluses (++) for more than 3 occurrences.

-Expressing feelings and emotions

Feelings and emotions can be represented, either only by drawing, or only by title, or both. This feature can be found in all three activities, in some cases it can be expressed by a replica of the figures in the drawing (people, animals, inanimate objects).

-Articulating a story

Creative people are able to communicate in a clear and powerful way. The drawing must show a relationship of interaction between its elements. This trait indicates the ability to represent a general picture that actually communicates something. It is found more often in activity l.

-Movement and action

It is one of the most recognizable features. The movement can be represented in several ways: by title, by lines of the characters in the drawing, by positions of the characters or things in the drawing. The most common indicators of movement and action include running, flying, dancing, skiing, wrestling, eating, drinking, swimming, floating, diving, hitting, and so on. This feature can occur in all three activities. There is a possibility that in activity l there may be three or more expressions of movement, in which case double plus (++) is granted.

-Expressiveness of the title

To be scored, the expressiveness of the title must go beyond mere description. Drawings with an ironic or satirical title fall into this category, as do very abstract and figurative titles. If after the question "If I remove the title, will the painting tell me the whole story?" the answer is no, then the drawing will be scored for expressiveness.

-Combining two or several incomplete figures (activity 2)

The appearance of this feature is very rare and indicates a person with the ability to tear down the existing structure and limitations and recombine everything into a new whole.

-Combining two or several sets of lines (activity 3)

This feature is very easy to be recognized and is more common than the previous one. Represents the ability to perceive separate components (sets of lines) in an object or painting and indicates persons who, under restrictive conditions, are able to use any loophole allowed to them.

-Unusual visual perspectives

What we are looking for here is a drawing that shows an object from an angle from which we normally do not see it, because the creative person can perceive things and situations in different ways.

-Internal visual perspectives

Creative people are able to visualize beyond the external appearance, and to notice the internal, dynamic functioning of things.

-Extension (breaking boundaries)

This feature is found only in Activity 3, where there are many ways to extend the boundaries of the imaginary rectangles described by the parallel lines. Lines can represent the head or tips of an object and the boundaries can be extended up and down. The two lines can be separated and each used as a basis for two or several elements in a drawing.

-Humor in title and drawing

Humor can be expressed in many ways. Sometimes it is given by the absurdity of the drawing itself, by the manner in which the facial expression, the caricature, etc. is drawn.

-The richness of imaging

The answers in this category show variety, liveliness and intensity. There are types of answers that help to get rid of the boredom of scoring a large number of common answers. Images with this feature create a clear, strong, distinct image in the viewer's mind.

-Coloristic

Some answers can be rich and colorful, while others can be colored without being rich, and vice versa. A colorful answer involves, in one way or another, the senses.

-Speed of entry into the task

It is a simple feature to detect because it assumes that either the first response to activity 2 or the first response to activity 3 receives a point for originality. If one of them receives a point for originality, then a plus (+) is awarded. If both answers are original, then a double plus (++) is given for the speed of integration in the task. The first answer is the first figure drawn, not the first figure from that activity. (Dincă, 2001)

Details:

An answer may not contain any of the 13 features, or it may contain more than one, as they are not excluded. Some of the features appear frequently, others very rarely. When a rare trait appears, such as the combination of figures in Activity 2, it usually indicates superior creative abilities. Some features tend to appear simultaneously, such as image richness and color.

With the exception of four features (combining figures in activity 2, combining lines in activity 3, breaking boundaries in activity 3, speed of entry in task in activities 2 and 3), the others can occur in all activities.

After obtaining the results for the three activities in part, the summary of the points for was made, depending on the fluency, flexibility, originality and elaboration. The scores obtained for the parameters semantic abstraction (activities 1 and 2) and resistance to closure (activity 2) were also added to the scorecard.

M.Dincă (Dincă, 2001) proposes the transformation of raw scores into standard scores and the determination of the creativity index (Qcr). It was calculated as the sum of the average of the standard scores of the creativity factors (fluidity, flexibility, originality, semantic abstraction, elaboration, resistance to premature closure) and the sum of the bonuses obtained for creative features. In this work we have used only the raw scores. Thus, the creativity index is also calculated based on them.

3. OBJECTIVES AND HYPOTHESES

Objectives

The objective of this study, in which we use as a tool the Torrance Test of creative thinking - figural form, developed by M. Dincă (Dincă, 2001), is to determine the index of creativity in adolescents, by evaluating the factors of creativity.

Hypotheses

a) It is assumed that there are differences between the genders in terms of the value of the creativity index in adolescence, girls having a higher value than boys.

b) It is assumed that there are differences between adolescents in terms of creative skills depending on the profile in which they are enrolled, in the sense that students in humanities and vocational-pedagogical profile have a higher level of creativity index than students in the science profile.

c) It is assumed that the scores recorded for the creativity factors are influenced by age, the younger subjects having higher values than those of the older subjects.

4. PARTICIPANTS AND PROCEDURE

The research was carried out on a population of 242 adolescents, aged between 15 and 18, students at the National High School of Computer Science "Matei Basarab" Rm. Valcea. in the 10^{th} and 11^{th} grades, mathematics-computer science, natural sciences, social sciences and vocational-pedagogy profiles. Of these, 49.17% are aged between 15 and 16, and 50.83% are between 17 and 18 years old. Out of the total number of participants in the research, female subjects represent 62%.

The participating adolescents were characterized by a high intellectual level, the National College of Computer Science "Matei Basarab" Rm. Vâlcea registering values of the last admission average higher than 8.50.

The participants were recruited voluntarily, following the presentation of the research purpose by the leading teachers of the targeted classes. The informed consent of the parents was obtained, in the case of the minor subjects, as well as the own consent of the adult subjects. In some frontal meetings, in the classroom, I applied the research tools: The Torrance Test of Creative Thinking - Figural Form (Dincă, 2001), The Three-Dimensional Scale of Creativity, The questionnaires were administered during the leadership lessons in pencil-paper format, and their filling in took 30 minutes. The sampling method was non-random.

5. INSTRUMENTS

Starting from the Three-Dimensional Scale of Self-Esteem developed by Coman Petruța Daniela (Coman , 2010) we developed the tool called the Three-Dimensional Scale of Creativity to assess creative skills in adolescence. The scale comprises 24 items and is made in three dimensions:

- Fluency - items: 1, 4, 7, 10, 13, 16, 19, 22
- Flexibility - items: 2, 5, 8, 11, 14, 17, 20, 23
- Originality - items: 3, 6, 9, 12, 15, 18, 21, 24

Each item was evaluated on a Likert scale (1-5: 1- never, 5- always), and the scoring was done by direct summation of the scale and indirect rating.

The information obtained with the help of the psychometric tool The Three-Dimensional Scale of Creativity complemented those obtained from the observation and application of the Torrance Test of creative thinking - the figural form.

VARIABLES

- Age
- Gender
- Attended profile

- Fluency
- Flexibility
- Originality
- Creativity Index (Qcr)

Data analysis

We processed the obtained data, which we organized in a database, with the help of the Microsoft Excel application in order to be able to statistically present the research and hypothesis verification group.

Before proceeding with the hypotheses verification, we analyzed the normality of the distribution with the Kolmogorov-Smirnov test, and the result was that the data distribution can be assimilated to a normal distribution. To establish the relationships between the study variables we used the Pearson Linear Correlation, performing a data screening process in order to investigate the extent to which the assumptions necessary to use the linear correlation are met.

The differences in the creativity index variable based on gender, age and profile were analyzed with the t-test for independent samples.

6. RESULTS

The following tables, *Table 1*, *Table 2*, *Table 3*, *Table 4*, shows the main statistical indicators for the Flexibility, Originality, Fluency and Creativity Index variables.

Table 1 – Flexibility

Flexibility	
Mean	6.107438017
Standard Error	0.128778518
Median	6
Mode	6
Standard Deviation	2.003323599
Sample Variance	4.013305442
Kurtosis	-0.758422623
Skewness	0.088444178
Range	8
Minimum	2
Maximum	10
Sum	1478
Count	242
Largest(1)	10
Smallest(1)	2
Confidence Level(95,0%)	0.253675164

Table 2 - Originality

Originality	
Mean	10.33884298
Standard Error	0.269190409
Median	10
Mode	10
Standard Deviation	4.187620006
Sample Variance	17.53616131
Kurtosis	0.189778538
Skewness	0.336410509

Range	21
Minimum	1
Maximum	22
Sum	2502
Count	242
Largest(1)	22
Smallest(1)	1
Confidence Level(95,0%)	0.5302664

Table 3 – Fluency

Fluency	
Mean	5.20661157
Standard Error	0.05792223
Median	5
Mode	5
Standard Deviation	0.901058441
Sample Variance	0.811906313
Kurtosis	8.452956275
Skewness	-0.865970654
Range	8
Minimum	0
Maximum	8
Sum	1260
Count	242
Largest(1)	8
Smallest(1)	0
Confidence Level(95,0%)	0.114098465

Table 4 – Creativity Index

Creativity Index - Qcr	
Mean	21.6320885
Standard Error	0.41015171
Median	21.1666667
Mode	16.3333333
Standard Deviation	6.36726679
Sample Variance	40.5420864
Kurtosis	0.18917494
Skewness	0.30065531
Range	43.1666667
Minimum	1
Maximum	44.1666667
Sum	5213.33333
Count	241
Largest(1)	44.1666667
Smallest(1)	1
Confidence Level(95,0%)	0.80795688

Table 5 – Average, standard deviation and number of subjects

Variable	M	SD	N
Creativity Index (Qcr)	21,64	6,36	242
Fluency	5,21	0,90	242
Flexibility	6,11	2,00	242
Originality	10,34	4,19	242

Table 5 shows the following data: number of subjects (N), average (M), and standard deviation (SD) for the fluency, flexibility, originality and creativity index variables.

Table 6 – Values for Creativity Index by gender, age and profile frequented

Variable	**Average**		**Standard deviation**		**t**		**df**		**d**	
Creativity Index (Qcr)	21,63		6,37		1,65		242		0,1	
Gender	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
	20,53	22,33	5,53	6,74	3,66	3,74	92	150	0,17	0,11
Age	**15-16**	**17-18**	**15-16**	**17-18**	**15-16**	**17-18**	**15-16**	**17-18**	**15-16**	**17-18**
	22,1	21,21	7,24	5,36	4,11	3,76	119	123	0,07	0,07
Profile	**U**	**R**	**U**	**R**	**U**	**R**	**U**	**R**	**U**	**R**
	22,54	20,71	6,96	5,52	9,45	4,11	124	118	0,14	0,15

Table 7 – ANOVA test - Results

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
M	92	1889	20.53261	30.60027
F	150	3349	22.32667	45.44365

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	183.5425	1	183.5425	4.609821	0.032792	3.880497
Within Groups	9555.729	240	39.81554			
Total	9739.271	241				

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
U	124	2794.5	22.53629	48.49574
R	118	2443.5	20.70763	30.53083

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	202.1882	1	202.1882	5.088051	0.024992	3.880497
Within Groups	9537.083	240	39.73785			
Total	9739.271	241				

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
15-16 ani	119	2629.5	22.09664	52.43526
17-18 ani	123	2608.5	21.20732	28.72192

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	47.83595	1	47.83595	1.184616	0.27751	3.880497
Within Groups	9691.435	240	40.38098			
Total	9739.271	241				

As can be seen in Table 6, the average creativity index for boys is 20.53 and for girls 20.33. The difference between the two averages is 1.8, and p = 0.03 <0.05. This indicates that there are statistical differences between the values of the creativity index depending on the gender variable. The average scores of the creativity index in boys (M = 20.53, SD = 5.53) are lower than those obtained by girls (M = 22.33, SD = 6.74), the value of the t test with 242 degrees of freedom has a bidirectional significance level of 1.65, p <0.05.

Cohen's indicator d was used to calculate the effect size, the values obtained, depending on the gender, being 0.17 and 0.11, respectively, which indicates a low level of association.

The existence of statistically significant differences between the values of the creativity index, depending on the gender variable, entitles us to accept hypothesis 1.

Table 6 also shows the average of the creativity index for students attending a humanities profile M = 22.54, as well as that of students with a science profile M = 20.71. The difference between the two averages is 1.83, and p = 0.02 <0.05. This indicates that there are statistical differences between the value of the creativity index depending on the variable profile frequented. The average scores of the creativity index in students from the humanities profile (M = 22.54, SD = 6.96) are higher than those obtained by students attending a science profile (M = 20.71, SD = 5.53), the value of the t test with 242 degrees of freedom has a bidirectional significance level of 1.65, p <0.05.

Cohen's indicator d was used to calculate the effect size, the values obtained, depending on the profile frequented, being 0.14 and 0.15, respectively, which indicates a low level of association. The existence of statistically significant differences between the values of the creativity index, depending on the variable profile frequented, entitles us to accept hypothesis 2.

Also, Table 6 presents the average creativity index for students aged 15 to 16 (students in the 10th grade) M = 22.10, and the average creativity index for students aged 17 to 18 (students in the 11th grade) M = 21.21. The difference between the two averages is 0.89, and p = 0.28> 0.05. This indicates that there are no statistical differences between the value of the creativity index according to the age variable. The average scores of the

creativity index in the 10th grade students (M = 22.10, SD = 7.24) are higher than those obtained by the 11th grade students (M = 21.21, SD = 5.36), but the differences are not significant, the value of the t test with 242 degrees of freedom has a bidirectional significance level of 1.65, p> 0.05.

Cohen's indicator d was used to calculate the effect size, the values obtained, depending on the age of the students, being 0.07 and 0.07, respectively, which indicates a low level of association.

The lack of statistically significant differences between the values of the creativity index, depending on the age variable, entitles us to reject hypothesis 3 and to accept that age does not influence the creative skills of adolescents.

7. DISCUSSIONS

The study we conducted analyzed the creative skills of adolescents, how factors such as gender, age and profile frequented by subjects influence their level. The study aimed to test whether these variables affect the level of creativity, the way in which this creativity is expressed and possibly influenced by the educational and professional choices of adolescents.

The results obtained from the statistical processing confirmed the data obtained by direct observation: girls are more creative than boys, more creative students tend to follow a humanities profile. It turns out that age does not significantly influence creativity.

The research results highlighted aspects with practical and theoretical implications in pedagogical practice.

The results obtained from the statistical processing showed that there are differences between the creative skills according to gender. The more accelerated development and growing up of girls, associated with the complexity that creativity, as a psychic phenomenon, implies, could be the basis of the differences, in terms of girls' creative skills, compared to those of boys.

Both at the level of practice and following the statistical analysis of the results of our study, there were differences, in terms of creativity, between students who followed a humanities profile and those who attended a science profile. One explanation for this could be that young people with superior creative skills are less attracted to the exact sciences, which require more rules and more rigor. Also, an explanation for the differences registered could result from the fact that in the present research we included students from the vocational-pedagogical profile between the students who attended a humanities profile. Admission to the pedagogical profile involves taking eliminatory tests in music, drawing, sports. Thus, the group formed by students in humanities includes students who have demonstrated skills and competencies in these fields, so conducive to creativity. It should be noted that girls predominate in the vocational-pedagogical profile, and the statistical results confirmed the observation that, in adolescence, the level of creativity of girls is higher than that recorded by boys. Another explanation for this could be that attending the humanities profile has contributed to a development or unleashing of creative skills. This could be the hypothesis of a later study.

Following the statistical processing of the data recorded by applying the Torrance Test of creative thinking - the figural form, no differences were found in the level of creativity, depending on age. This aspect could also be explained by the small number of the population on which the study was conducted. A further study could be carried out on an extended group to see if the creativity is really independent of the age of the subjects.

8. PRACTICAL IMPLICATIONS

The results of this study are important from a pedagogical point of view. Knowing the influence that the gender and the profile frequented by the student exerts on the level of creativity in adolescence, but also the fact that age does not play a decisive role on this psychic phenomenon, specific programs can be developed to stimulate creativity by those working in education. These programs can be based on principles such as:

- Each individual has a certain creative ability. This creative capacity can be developed through specific means, and the school is the framework in which this development should take place.
- Creativity, in adolescence, includes aspects related to the fluency, flexibility and originality of thinking.
- The variables of gender and educational profile frequented influence the level of creativity in adolescence, while age does not exert a significant influence.

Also, the research results may determine changes in the way the teaching activity is approached, in order to adapt it to current requirements.

9. LIMITS

The study carried out for this paper has, like any research, a series of limits, among which:

- the cross-cutting approach, which prevents the drawing of causal conclusions on the relationships between variables
- taking into account that the participants in the research come from a certain geographical and cultural area, the generalization of the results to other categories of populations must be carried out with caution
- the relatively small number of participants in the study may have influenced the results obtained in case of hypothesis number 3.

10. FUTURE DIRECTIONS

Starting from one of the possible explanations regarding the confirmation of hypothesis 2 we can lay the foundations of a longitudinal study, in which to see if more creative students choose to attend high school with a humanities profile, or attending this profile determines a development of their creativity.

Also, the rejection of hypothesis number 3 may be the starting point of a study, conducted on a larger group of participants, to test the independence of creativity from the age of the subjects.

Further studies can be made in order to outline a more accurate picture of the creativity of adolescents, how its development and manifestation is influenced by the school environment.

The development of programs to stimulate creativity, both for students and for teachers in pre-university education, or even parents, can be achieved by taking over certain aspects of the design of this research.

The results of the two research studies form the basis of the counseling program for this target group.

The program to stimulate creativity developed in the doctoral thesis included elements of self-knowledge, recognition and awareness of one's own creative skills, discovery and capitalization of creative resources. Participation in counseling sessions has led

to an evolution in the field of creativity. The scores obtained by the subjects in all the applied tests increased between the initial moment (before participating in the program) and the final one (after attending the program). These results validate the effects of the activities included in the program, the effects produced by the use of open, interactive, student-centered methods that involve him in all stages of the teaching process.

The research and counseling program developed bring to the fore and scientifically support that from a practical, individual point of view, the creative potential of adolescents can be increased by applying interactive methods in the teaching-learning process. The validation of the Creativity Stimulus Program is an argument that open educational activities offer adolescents the opportunity and possibility to access and enhance creative resources.

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