

Ways to Cultivating Creative Thinking at School Age

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Abstract

Keywords:

creative thinking; psiho-pedagogical experiment method; games; educational; positive change.

The objective of this experimental article is to demonstrate how creative thinking methods succeed in stimulating the creative thinking process both in school and in everyday life. Theoretical information about creative thinking provided a brief introduction and familiarisation with the terms. This paper aims to study ways of cultivating creative thinking at a young school age (3rd grade), and the positive impact these methods have on the development of creative thinking. In this research we used the psycho-pedagogical experiment method, and in addition to this we also used systematic observation and product analysis. The experiment involved two groups of students from the 3rd grade, from the "IAR Pogoneanu" Technological High School, Pogoanele city, Buzău county, 8-9 year old students. The two experimental and control groups experienced an increase in the score. The experimental group had a considerable increase, as a result of the creative thinking games, unlike the control group which had an almost imperceptible increase. Therefore, this research achieved its objective, so it was able to achieve an increase and improvement in results as a result of the application of creative thinking games. Following the experiment, both we and the teachers in the educational unit where the experiment took place, noticed a positive change in the students' behaviour.

Zusammenfassung

Schlüsselworte:

Kreatives Denken; Psycho-pädagogische Experimentier Methode; Spiele; Pädagogisch; Positive Veränderung.

Ziel dieser Bachelorarbeit ist es aufzuzeigen, wie es gelingt, mit kreativen Denkmethode den kreativen Denkprozess sowohl in der Schule als auch im Alltag zu stimulieren. Theoretische Informationen über kreatives Denken liefern eine kurze Einführung und Einarbeitung in die Begriffe. Diese Arbeit zielt darauf ab, Wege der Förderung des kreativen Denkens in einem jungen Schulalter (3. Klasse) und die positiven Auswirkungen dieser Methoden auf die Entwicklung des kreativen Denkens zu studieren. In dieser Forschung verwendeten wir die psychopädagogische Versuchsmethode, und zusätzlich zu diesem verwendeten wir auch systematische Beobachtung und Produktanalyse. Das Experiment umfasste zwei Gruppen von Schülern der 3. Klasse, von der "IAR Pogoneanu" Technological High School, Pogoanele Stadt, Buzău County, 8-9-jährige Schüler. Die beiden Versuchs- und Kontrollgruppen erlebten einen Anstieg der Punktzahl. Die experimentelle Gruppe hatte eine beträchtliche Zunahme, infolge der kreativen Denkspiele, im Gegensatz zu der Kontrollgruppe, die eine fast unmerkliche Zunahme hatte. Daher erreichte diese Forschung ihr v, so dass sie in der Lage war, eine Steigerung und Verbesserung der Ergebnisse als Ergebnis der Anwendung von kreativen Denkspielen zu erreichen. Nach dem Experiment bemerkten sowohl ich als auch die Lehrer in der Unterrichtseinheit, in der das Experiment stattfand, eine positive Veränderung im Verhalten der Schüler.

1. Introduction

This paper aimed to follow the ways of cultivating creative thinking at the school age and demonstrated how these ways influenced the creative personality of the school-age child. From my point of view, this topic is very topical and of particular importance both for current and future teachers and for people who are surrounded by children. Creativity was also a very new and very old problem. Very new, under the scientific, objective and concrete report in which it is defined and treated, especially in the post-war stage. Very old, in the account of cultural concerns for what represented man's contribution to this planet and even the very cultural destiny of mankind (Roco, 1979). Creative thinking plays a very important role in our lives. It has been scientifically proven that it greatly improves student outcomes, is associated with improved well-

being, makes students easier to engage and the reasons can continue. Creative thinking is what you do when you are creative, and creativity is the result of it (Bill & Spencer, 2020). This topic helped teachers discover new ways to stimulate and cultivate creativity and creative thinking in classroom activities, and also helped to achieve more interesting and interactive hours. Various studies have shown the benefits of specific aspects of creative thinking, as it appears to considerably improve students' outcomes.

2. Statement of problem

The whole world around us is the result of human creation, even if we are talking about the smallest discoveries or the most incredible ones. Following, as was natural, the process of creation, it has been



observed that when solutions to a certain exciting problem are sought, stages or studies of a possible one can be delineated. Do you think it is important for students to develop their creative thinking? It has been shown in numerous specialized studies that creative thinking can have a positive influence in terms of student interest and academic achievements. It helps the socio-emotional development of students by supporting the interpretation of experiences, actions, giving them new, original and personal meanings. Creative thinking is what can give children a better and faster adaptation to the environment puts them in direct contact with the outside world. Through creative thinking, students can actively contribute to the development of the society in which they currently live, as well as future employees.

3. Theoretical foundation

The concept of thinking can be defined in many ways and by many “thinkers” of the time.

Creativity involves both the imaginative (divergent) and disciplined (convergent) aspects of thought. Creative thinking involves critical judgments, just as critical thinkers must be curious and accept divergent views. Creative thinking is what you do when you're creative, and creativity is the summary of this situation (Bill & Spencer, 2020). When we talk about creative activity we say that it is intentional and automatically generates an original and valuable result. We can say about creative thinking that it is often a social activity, which comes as an aid in finding a solution to a problem that a person is facing in a difficult time.

Creativity is an important concept expressed by the child through works, compositions, drawings. These being done naturally and spontaneously. Creativity is found in most activities performed by the child, both in home games and in school activities. They may reflect the beginning of the future artist or even a scientist. Creativity is “primarily the potential of children to perform games and activities that stimulate the imagination, intelligence, insight” (Țopa, 1980, p. 11). It can be said that a child who manages to make personal observations on an object, who manages to think independently, who can solve problems, is a child who develops his creativity. The child's creativity is often characterized by curiosity and openness to the unknown and to the new. That is why encouraging and guiding knowledge to this side has a particularly important role in the formation and development of the creative personality. Creativity. it is a spontaneous disposition to create and invent,

which exists in every person, at all ages. (Șchiopu & Verzea, 1997)

Al. Roșca is of the opinion that, due to the complexity of the creative phenomenon, it is unlikely that a unanimously recognized definition will be reached, because each author emphasizes different dimensions. According to some authors „creativity is the ability or ability to produce something new and valuable”, and after others it is a process by which a product (Roșca, 1981, p. 16). E.P. Torrance is the one who designed many creativity tests, he used three definitions of creativity depending on the purpose and context "to notice difficulties, problems, information gaps, missing elements, something crooked; to guess and make hypotheses about these deficits; to evaluate and test these hypotheses, can review and withdraw them; and finally, communicate the results (Torrance, 1988).

Creative thinking or "small" creativity is considered something that can and must be learned in school. Creative thinking is developed through any non-formal method of education or by stimulating thinking if it is forced to find more solutions to a problem, more answers to a question. Creative thinking involves letting go of any assumptions or prejudices we may have and examining things in a completely different way.

4. Research methodology

4.1 The purpose of the research

This paper aims to develop creative thinking through play as a way to cultivate creativity at school age (3rd grade) and the positive impact that this method has, both in the development of creativity and in the development of creative thinking. The results obtained in this research have as finality the introduction in the classes of games to stimulate creative thinking, who want to develop as much as possible this creative side of the small schoolboy.

The research objective

The objective of this research is to investigate the changes produced in the development of creative thinking following the use of games and incentive methods. The objective of the research is to introduce in the didactic activity as many games to stimulate thinking.

Study hypothesis

If games and methods of stimulating creative thinking are used cursorily, a method more and more common during low schooling, then there are

considerable changes in the development of students' creative skills and creative thinking.

4.2 Methods used in research

In this research, the method of the psycho-pedagogical experiment was used, in addition we used systematic observation and product analysis. Depending on the purpose and issue addressed, this research is a practical-applied one, even if during the research it also contains theoretical-fundamental bases. This research aims to develop the creative thinking of small schools and to introduce this type of thinking in everyday life, research being an interdisciplinary one.

4.3 Research organization

This research will take place between May 1 and May 19, 2023, during three weeks, inside the Technological High School "IAR Pogoneanu" from Pogoanele, Buzău County.

Sample

The experiment will be attended by two groups of students from the 3rd grade from the Technological High School "IAR Pogoneanu", Pogoanele city, Buzău county, students aged 8-9 years. Group 1 (Experimental sample) included 15 subjects considered "medium-level", aged between 8-9 years.

Group 2 (Control sample) included 15 subjects considered "medium-level" aged 8-9 years. The sex ratio for group 1 was (8 girls: 7 boys);

The sex ratio for group 2 was (8 girls: 7 boys); The children participating in this experiment come from families with modest conditions, they also benefit from support from parents in solving school tasks.

4.4 Means necessary

To perform the experiment we used a standardized test model to identify the creative potential of the subjects before and after the experiment. The Torrance test is a creative thinking test, one of the best known in education. Through it we evaluated the figurative creativity of the subjects, adapting the test to the sample. As a guide to obtaining the score, we used the information provided by P. E. Torrance (Dincă, 2001).

4.5 Experiment design

Variable

The variable is represented as a test factor that can be changed or can receive different characteristics under various conditions. The variable is considered a

property of an event in the world that has been measured (Aniței, 2007).

The independent variable is the one that can be manipulated by the one who performs the experiment, the one that can determine the quality and quantity. When a change in the level of the independent variable produces a change in behaviour, it means that that behaviour is under the control of the independent variable. The independent variable of this research is that the game, through its periodic practice before classes, causes changes in the behaviour of creative thinking of school children.

The dependent variable is observed and recorded by the experimenter. It is closely related to the behaviour of the subjects, behaviour dependent on the independent variables (Aniței, 2007). The variables of the experiment are: figurative fluidity, figurative flexibility; figurative originality and figurative elaboration.

4.5.1 Pre-experimental stage

In order to achieve this stage, we presented on May 2 at the educational unit "IAR Pogoneanu" Technological High School in Pogoanele, Buzău County. Groups 1 and 2 participated in this stage simultaneously. Their location in banks was random, and the space between them was respected. After all the students arrived, we introduced myself by telling me my name, basic opacity and some relevant things about myself. This introduction was followed by the announcement of the activity on that day. Before receiving the Torrance test, students received explanations about the requirement and an example on the board. we asked him not to use the same object we presented. The object presented was a pencil.

The students sat in the benches, and we began to introduce myself, we told them my name, my occupation and some relevant things about me. we asked them what they like to do in their free time and after the answers we told them that we came to play some games with them. They told me that they are very happy, they really like to play, even if they don't have much time at school.

After this introduction, we explained the test requirement to them, WE made sure that they understood everything they had to do and WE exemplified them on the board. He specified that they do not have a certain working time and WE wished them success immediately after we offered them the files.

After completing the test, we congratulated them on the beautiful drawings and thanked them for participating. WE told them we would see each other soon and play together again. Also, the students informed me that they liked it very much and that they can't wait to see you again. we left the "I A R Pogoneanu" Technological High School, and we will return the next day to start the games.

4.5.2 Experimental stage

During this stage, we returned to the previously specified educational unit to start the games. We went to the 3rd grade A, playing the games only with the 15 students of the experimental group. We did this for two weeks to complete all 5 games. WE waited for them to arrive and told them we would play the "I wonder .." game..". WE specified to them that it is an interactive game and that WE can't wait to play together (Lucas & Spencer, 2020).

In the same week, May 5, we returned to the Technological High School "IAR Pogoneanu" to carry out the second game together with the first group. WE told the students that today's game is called "The Expert's Cloak". We told the students that in this game they will be divided into three groups. Each group will receive a photo with a certain situation. Together they will try to figure out what is going on in the picture with the help of the given clues. In the end, they will choose an "expert" of the group that will speak and tell their story (Lucas & Spencer, 2020).

We described the game, presented them with the rules and made sure that all students understand the tasks. The following week, we returned to carry out the third game together with the experimental group. This time our game is called "Philosophy for Children". The game is very simple and we can say that it does not contain rules, but we simply try to be as attentive and creative as possible (Lucas & Spencer, 2020).

We ask the students to sit in a circle before the game starts. After that, we tell them that our topic of discussion is about "Modern Technology". we asked him to tell me some benefits (good things) that technology has in a student's life, but also some disadvantages (bad things), which can affect the student. The children tried to say as many good things as possible, but the more we talked, the more the disadvantages began to appear. We added a few more questions.

In the same week, on May 12, we returned to the Technological High School "IAR Pogoneanu" to carry

out the fourth game. For starters, we told them the name of the game is "Six Thinking Hats". We grouped the children into six teams, each team having a representative hat. Each hat represents something (facts; feelings; positive; caution; creation; understanding). After receiving the topic, the groups began to discuss the issue using questions and statements included by the team in the category of the hat (Lucas & Spencer, 2020).

In the last week we returned to the educational unit to complete the last game in this experiment. After the arrival of all the students, we informed them that today we will play the game with number five. WE told them that the game is called "Thinking Probabilities", it is a different game than the others so far, and for its realisation WE also brought some accessories. (Lucas & Spencer, 2020). We told the kids that this time we would stay in the banks and play with the "power of the mind". Before starting the game, We asked them to choose between a paper clip and a notebook, without explaining to them what we would do with them. They chose the notebook. Soon they each received a notebook and a half sheet. We explained to them what they had to write down on the sheet. They had to write down as many creative attributions as possible of the chosen notebook.

4.5.3 Final stage

At the end of the week, May 19, we returned to the educational unit to perform the Torrance test, the test presented initially and to be solved at the end of the 5 games. To achieve this stage we met with the first and second groups. We waited for all the participants to arrive. Each student received the Torrance test, the same test received about a month ago. We reminded them what they have to do to perform the test, a test that we called everything game. Students had unlimited time to draw, so as to freely expose their ideas without being pressed for time or other disruptive factors.

After completing the test, we gathered the records and stayed to talk to the students a little longer, we asked them what they liked about the games they played together and if they would like the teacher to play such games with them. The children only had positive answers, and we was very happy about this. We thanked everyone for the wonderful experience and conveyed the best thoughts to them before saying goodbye.

4.5.4 Data analysis and interpretation

To obtain the results below we used and adapted the Torrance test score (Dincă, 2001). This scoring will calculate the points that will be obtained for the following factors: fluidity, flexibility, originality and elaboration.

5. Results

Following this experimental research, the following results were obtained. The results will be presented in histogram form. These will show both the initial and final results obtained by the participants in the experiment. Also, you will find displayed some images of the drawings made by the participants. Group 1, 3rd grade, experimental group.

Figure 1. The initial and final results obtained by the participants in the experiment Group 1, 3rd grade, experimental group.

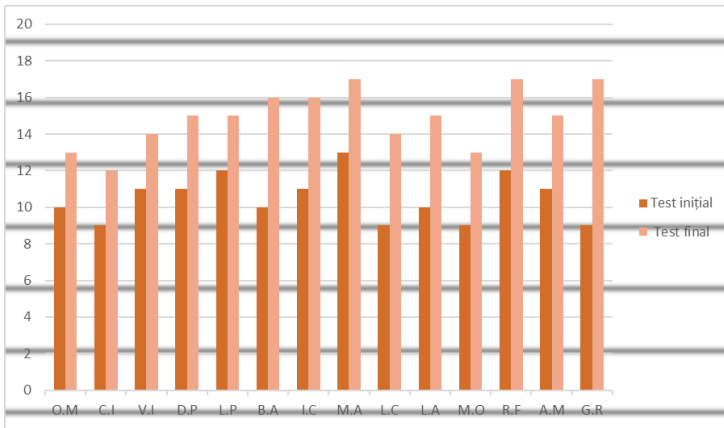


Figure 2. Image 1: Group 2, 3rd grade, control group



Figure 3. The initial and final results obtained by the participants in Group 2, 3rd grade, control group

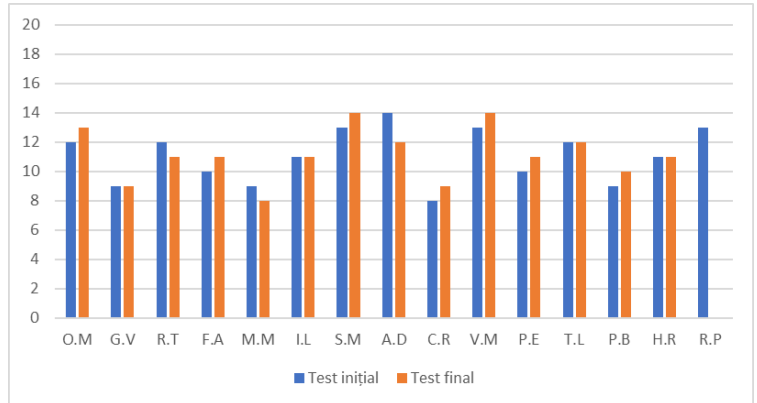


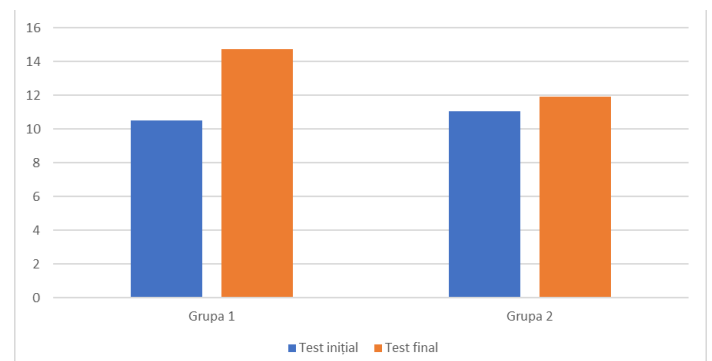
Figure 4. Image 2: Group 2, 3rd grade, control group



Analysis of results

It can be seen that in the experimental group the results were higher, while in the control group there were also participants who obtained the same score or even a lower score than the initial one. Scoring differences can also be seen in the histogram below. Histogram that compares the results between the experimental and control groups.

Figure 5. The initial and final results obtained by the participants



Following the results obtained, we can say that the participants in the experiment did very well, both the experimental group and the control group obtained average scores, proving the average level, their classification in this category.

We can say that the results differ from group to group, so we will do an analysis of the results according to each group participating in the experiment.

The first group is an experimental group in which 15 students participated, they obtained a lower score at the initial test than in the final test. The smallest difference in score was 3 points, and the largest was 6 points. Taking an average of these scores, we found that the average of the initial test was 10.53 points, and the average of the final test was 14.73 points. Following this average you can see the average increase of the score by 4.2 points from the testing performed before the application of creative games to the final test.

The second group is a control group, in which 15 students participated, their score was quite different. There were students who obtained the same result, both at the initial and the final test; other students obtained a lower score in the final test compared to the initial one, and other students obtained a higher score in the final test compared to the initial test. The difference between scores is 1/2 points, in some students the score increased by one or two points, and in others it decreased by one or two points.

The average score from the initial test was 11.06 points, and the average score after the final test also resulted in 11, 93 points. Following this average it can be seen that the average has increased by a fairly small percentage, 0.87 points, and students who did not participate in creative games, they failed to exceed the initial average by much.

6. Discussions

Establishing correlations

After completing the analysis on both groups participating in the experiment, we noticed that the first group, the experimental group, had a considerable increase in the score following the development of creative games.

On the other hand, we found that in the case of the control group a very small increase in the score was noted. Following the two conclusions of the analysis, we can say that creative thinking games have brought an increase in the score to all members participating in

them. The presence of research wanted to measure the impact that games have constantly applied on children, from the point of view of the development of creative thinking. In creative thinking games and in the test, the styling of some features was integrated creatively, such as: expressing feelings / emotions; imagination, curiosity, discovery ideas, sensitivity to problems, originality, etc. We can say that the teachers noticed a better concentration of the students who participated in the experimental games. Some of them stated that students were more eager to answer questions and tried to find the most creative answers in certain hours.

It can be stated that the research hypothesis is valid in terms of fulfilling the objective proposed by the researcher.

7. Conclusions

Following the completion of this research, we can say that one of the most important factors in the harmonious development of the small school is creativity. Creativity helps students to develop both in school and in family or social. This research has found methods that can be used to develop creative thinking at young school ages and has put into practice one of these methods, precisely to observe what changes are taking place. In this research, it was the game that helped the students participating in the experiment to develop their creativity and creative thinking. From my point of view, if these creative thinking-stimulating games were to take place much more often, students would have a much better school performance, it would be a more united team due to group games in which it would be better known. Regular creative games would bring a lot of benefits to the school environment, and the time allotted for a game could be 10 minutes in the morning, before the start of classes.

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Dinu Cristina Georgiana is a student at the Faculty of Psychology and Educational Sciences, in the first year at "Master in Educational Management”, at the University of Bucharest, Romania. In 2009 she graduated from the Pedagogical High School and is currently an educator at Caldarasti Kindergarten. In 2012 she graduated from the Faculty of Psychology and Educational Sciences, and in 2018 she was promoted to the second teaching degree. She is now

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References

- Aniței, M. (2007). *Experimental psychology*. Iași, Polirom.
- Bill L., Spencer E. (2020). *Teaching creative thinking*. Bucharest. Educational Publishing
- Dincă, M. (2001). *Creativity tests*. Bucharest, Paideia.
- Lucas, B. and E. Spencer (2020). *Zest for Learning: Developing curious learners who relish real-world challenges*. Carmarthen: Crown House Publishing Ltd.
- Roco, M. (1979). *Individual and group creativity - Experimental studies*. Bucharest, Romanian Socialist Republic Academy.
- Roșca, Al. (1981). *General and specific creativity*. Bucharest, Romanian Socialist Republic Academy.
- Șchiopu, U. și Verzea, E. (1997). *Psychology of ages*. Bucharest, Teaching and Pedagogical Publishing House.
- Torrance, E.P. (1988). *The nature of creativity as manifest in the testing*. R.J. Editura Sternberg.
- Țopa, L. (1980). *Creativity*. Bucharest, Scientific and encyclopaedic.