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CREATIVITY DEVELOPMENT METHODS IN THE PRIMARY EDUCATION SYSTEM

Abstract: This paper proposes to highlight the positive aspects of using the pupils' creativity development methods. The study aims at comparing the methods based on creativity and critical thinking used at the level of primary education system in Romania, both regarding the traditional education system and the educational alternative, Step by Step. The education aims at supporting learning and formation by practising the critical and creative spirit. The creative spirit becomes a premise for the cognitive demarche. Consequently, we will reveal the cognitive and creative progress of pupils from primary school integrated in the Romanian traditional education and in the Step by Step systems.

Key words: creativity, creativity development methods, primary education system in Romania, the Romanian traditional education, the Step by Step systems.

1. Creativity - a prerequisite of the cognitive process

The creative spirit (creative thinking) represents the relative autonomous endeavour of an individual who acts in and on the environment, endeavour which leads to a result/product having the characteristic of novelty, relatively original, customised (Amegan, *apud* Bocoş, 2013, p. 427).

Besides the creative spirit, an important role in the cognitive development is played by the critical spirit (creative thinking) which "consists in the mental process of analysis and evaluation of information, statements, sentences, approaches etc pretended by the authors to be true (…) represent a continuous mental process, difficult to be applied which demands systematic exercise, training, perseverance and talent" (Bocoş, 2013, p. 399).

Creative thinking becomes concomitantly attitude, philosophy, ability-aim and instrument. By means of creative thinking, the pupil is prepared to understand novelty and to interact with information, social and cultural environment. As an instrument, creative thinking contributes to the evaluation of statements, arguments, reasoning, identifying unclearness, confusions, cognitive difficulties, mistakes etc (idem, p. 402).

Three factors can determine the individual creativity in any situation (Amabile, 1997):

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1. **expertise**: technical, procedural and intellectual knowledge in order to identify the important elements of any particular problem;
2. **competences of creative thinking**: the imaginative, inventive and flexible way in which the person approaches the problems; these competences depend on the personal characteristics and the way of thinking. Creative thinking is characterized by a strong ability to generate new ideas by combining some formerly disparate elements;
3. **motivation**: the intrinsic passion (self-motivation) and the intrinsic interest to achieve the work (the object of creation). Creative people are at the mercy of their own values and motivations and they manage best the problems with a strong emotional affinity.

The relation between creativity and intelligence has been studied by Robert J. Sternberg, who elaborates the triarhic theory of human intelligence, stating that there are three main aspects which are essential for creativity (Sternberg, 1999, p. 52):

1. **The synthetical (creative) ability:** the ability to generate ideas which are new, high quality and adequate for the specified task;
2. **The analytical ability**: critical/analytical thinking is involved in creativity as the ability to judge the value of their own possible thoughts and solutions, to evaluate their strong and weak points and to suggest ways for their improvement;
3. **The practical ability**: the ability to apply the intellectual competences in daily contexts and *to sell* or to communicate creative ideas to the others. It is the ability to translate abstractions and theories in realistic applications.

Superior intelligence is common to many creative people. However, many studies of the relation between creativity and intelligence have shown that extreme general intelligence does not necessarily stimulate creativity. The threshold hypothesis proposed by Ellis Paul Torrance states that a high level of intelligence seems to be a necessary condition but not sufficient for superior creativity.

2. The effects of Creativity Development Methods in the Primary Education System

The purpose of the research is represented by the highlight of the effects of the specific training methodology, used in the framework of didactic activity with pupils in primary level in the traditional system and in the alternative system, Step by Step. ***The class*** represents a form of organization of the educational process through which the common activity of teaching the pupils collective is achieved under the teacher's guidance. ***The educational system Step by Step*** represents the most prevailing system of alternative education in Romania, with the following characteristics: education practices that take into consideration the child as a whole; the education process is centred on the child, the education is more individualized; parents' participation in the child's education and teaching is centred on the child's needs (Tankersley, Brajkovic, Handzar, 2013).

In order to achieve the proposed aim, we have chosen a **comparative research**. Comparison is at the heart of most social sciences research. Comparison can take place between different entities, such as individuals, interviews, statements, settings, themes, groups, and cases, or at different points in time. These entities or time periods are then analyzed to isolate prominent similarities and differences, a process that is described by the term ***comparative analysis*** (Mills, M. C., 2008). The approach required the use of the following research methods which correspond to the requirements of a comparative analysis: *documentation, the method based on the written questionnaire, observation.*

The sample consisted of 178 subjects – 128 pupils from primary level (preparatory school, first, second, third and fourth grades) and 50 teachers (teachers from primary and preschool levels), from the traditional system build on classes and lessons, and from the Step by Step educational alternative.

For the subjects in **the traditional classes** we have used such methods as: **narration, conversation method, exercise method, problem-solving, exposure method, heuristic conversation, demonstration, case study, debate**. The differences regarding the frequency of using traditional methods are significant (more than 10%) for methods such as: *exposition, narration, case study, reading and algorythmization*, as we can observe in Table 1:

METHOD USED	TRADITIONAL			SBS		
	Not at all	Rarely	Frequently	Not at all	Rarely	Frequently
Exposition	10.00	50.00	40.00	0.00	82.61	17.39
Narration	0.00	60.00	40.00	0.00	73.91	26.09
Conversation	0.00	0.00	100.00	0.00	0.00	100.00
Heuristic conversation	0.00	10.00	90.00	4.35	0.00	95.65
Debate	0.00	10.00	90.00	0.00	17.39	82.61
Observation	0.00	0.00	100.00	0.00	8.70	91.30
Experiment	0.00	10.00	90.00	4.35	13.04	82.61
Demonstration	0.00	0.00	100.00	0.00	0.00	100.00
Exercise	0.00	0.00	100.00	0.00	0.00	100.00
Role play	0.00	10.00	90.00	4.35	4.35	91.30
Problem-solving	0.00	10.00	90.00	0.00	8.70	91.30
Case study	0.00	20.00	80.00	0.00	65.22	34.78
Reading	0.00	10.00	90.00	0.00	21.74	78.26
Algorythmization	0.00	30.00	70.00	0.00	52.17	47.83

Table 1. The frequency of using traditional methods in the two educational systems

For the subjects in **the classes Step by Step** we have used the following methods: **the cube method, Focus group method, cluster method, brainstorming, Jigsaw, the method of didactic game, Frisco method, *solar bursting*, the method of thinking hats, change the pair method, the water lily technique, the quintet, the pyramid method, heuristic (socratic) conversation,**

modelling, discovery method, collective discussion, the technique of the gallery tour. As it was expected, the frequency of using modern methods is higher in the educational alternative Step by Step, due to its organizational and methodological specific. The differences regarding the frequency of using the interactive methods are significant (more than 10%) for methods such as: *computer aided training, Frisco, the Graphic Organiser method, quintet, 5 minutes' essay, the method of the snowball and Starbursting* (Table 2).

METHOD USED	TRADITIONAL			SBS		
	Not at all	rarely	frequently	Not at all	rarely	frequently
Brainstorming	0.00	10.00	90.00	0.00	0.00	100.00
Computer aided training	10.00	60.00	30.00	0.00	56.52	43.48
Dials method	0.00	20.00	80.00	0.00	17.39	82.61
Cluster method	0.00	0.00	100.00	0.00	21.74	78.26
The Cube method	0.00	20.00	80.00	0.00	43.48	56.52
Focus group method	10.00	70.00	20.00	8.70	69.57	21.74
The method I know – I want to know- I have learnt	0.00	20.00	80.00	0.00	43.48	56.52
Frisco method	30.00	70.00	0.00	17.39	65.22	17.39
Graphic organizer method	10.00	90.00	0.00	4.35	78.26	17.39
Jigsaw	10.00	50.00	40.00	0.00	52.17	47.83
The method of thinking hats	0.00	10.00	90.00	4.35	26.09	69.57
The Quintet	0.00	40.00	60.00	0.00	21.74	78.26
The gallery tour	0.00	10.00	90.00	4.35	8.70	86.96
The double-entry diary	0.00	50.00	50.00	8.70	47.83	43.48
5 minutes' essay	0.00	80.00	20.00	17.39	34.78	47.83
The snowball method	10.00	50.00	40.00	8.70	39.13	52.17
Starbursting	0.00	20.00	80.00	0.00	8.70	91.30
The horoscope method	30.00	60.00	10.00	34.78	52.17	13.04
Think-work in pairs - communicate	0.00	20.00	80.00	0.00	30.43	69.57

Tabel 2. The frequency of using modern methods in the two education systems

The teachers participating in the questionnaire state that the methods prevailingly used have led to a certain development level of the pupils from the cognitive and creative point of view. We have noticed significant differences both in the case of the cognitive development and in the manifestation of individual creativity and in the framework of the pupils group. From this point of view, the differences are significant. A percentage of 68,18 % of the teachers for the primary education system who activate in the educational alternative system appreciate a very high level of creativity manifestation in the alternative Step by Step, as compared to the percentage of 30% of teachers of the traditional system (Table 3).

	TRADITIONAL					SBS				
	Very high	**high**	**average**	**low**	**Very low**	**Very high**	**High**	**Avergae**	**Low**	**Very low**
Cognitive	60.00	40.00	0.00	0.00	0.00	77.27	22.73	0.00	0.0	0.00
Creative	30.00	70.00	0.00	0.00	0.00	68.18	31.82	0.00	0.0	0.00

Table 3. The appreciation of the cognitive-creative level development

Didactic staffs, teachers from primary level are competent and experienced persons. They are capable to appreciate not only their pupils cognitive and creative progresses due to specific methodology (from the traditional and SBS classes), but also the advantages and disadvantages of traditional and creative methods. The main pluses and minuses are presented in Table 4:

TRADITIONAL METHODS		CREATIVE METHODS	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**
Rigor, precision	Training uniformization	Encouraging thinking and creativity	Consuming a lot of time
The participation of a large number of pupils	The prevalence of the teacher's activity	Active participation of the pupils	The risk of not involving all the pupils
Saving time and material resources	Lack of dynamism	Free expression of the pupils	The inhibition of the less creative pupils
The transmition of a large volume of information	Mainly theoretical acquisitions	Practical-applicative acquisitions	Very expensive
Objective evaluation	Suming evaluation	Formative evaluation	Subjective evaluation
The possibility of covering the curriculum	Centring on contents	Centring on individual	The risk of centring on the form, not on the content
Thre prevalence of informative aspects	Reduced formative aspect	The prevalence of formative-creative aspects	The reduced possibility of transferring knowledge

Table 4. Advantages and disadvantages of instruction methods

In order to confirm the results obtained from the questionnaire, the observation method was used on our study, too. The differences between the two systems regarding creative manifestations registered by the observation method are shown in Table 5:

TRADITIONAL	SBS
passive behaviour, uninvolvement in the activity	active involvement, interactive
conformity, dependence	well-developed initiative spirit, independence
assimilate contents	problematizing the contents

convergent thinking	divergent thinking
reduced self-esteem	strong self-esteem
extrinsic motivation	self-motivation and intrinsic motivation
adopting the existing solutions	identifying possible solutions
distrust in their own potential	trust in their own potential
inflexibility and unadaptability of opinions	flexibility and adaptability o opinions
framing in patterns	customizing the products of activity
rejecting the new, the risk	orientation towards accepting the risk
exactness	tolerance for ambiguity

Table 5. The observation results

Conclusions

From the comparative analysis of the results obtained from traditional and SBS classes, it can be observed that the level of cognitive and creative achievements in the SBS system is definitely superior. In conclusion, the frequent use in the didactic activity of creativity development methods will lead to the optimization of the teaching-learning activity with pupils from primary school.

The school must offer to the pupil an educational environment that promotes every child's wellbeing. A hospitable, safe, stimulating and inclusive educational environment is insured, which promotes children's exploring, creativity and independence. The teacher should stimulate children to explore, to play and learn. Children must have the possibility to express themselves. The main instructive methods must be chosen in order to stimulate thinking and creativity, determine pupils to seek and to develop solutions to different problems, to build critical reflections and valuable judgements, to compare and to analyse the situations.

This is due to the fact that the activities of creative knowledge are influenced by the cognitive structures of a person. These activities will be profitable, qualitatively superior and productive if the cognitive structures are complete, well organised, compex and flexible. If the respective structures are simple, poor, inflexible or incomplete, the cognitive-creative activities will be unprofitable, inefficient and unproductive, appearing the risk of real blockages (Bocoş, 2013, p. 428).

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