

THE INFLUENCE OF INTELLIGENCE ON THE DEVELOPMENT OF CREATIVITY

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Abstract: *The psychology of our days promotes the idea that any human being has the capacity to be creative, but for this to happen there are a series of factors necessary to be involved. Guilford, the father of creativity, emphasizes the involvement in creativity of non-intellectual factors, but still considers that it remains under the condition of intelligence. Based on this fact, the present study researches convergent thinking as an important factor of the development of creativity and the variation of creativity in the school environment according to certain particularities, like the age and the background of the pupil. Contemporary education is dealing with the issue of creative learning, which is defined as a “form of teaching that, as a ultimate purpose, creates individual and collective behaviors which are oriented towards the search, the discovery and the realization of the new”. (Șchiopu, 1992). Therefore, creative teaching entails: personal initiative and independent work, belief in one’s own strengths, positive reactions to the demands of the environment. Creativity will become more and more a needed ability in the future and civilizations will thrive according to the measure of creativity they display. Creativity is therefore a problem that can determine the survival in time and space. (Roco, M. 2001)*

1. Theoretical foundation

Creativity is not a “pretty toy but a survival factor” (Birch, Clegg, 2003). Thus there is the risk for non-creative civilizations to disappear in the future. The focus of specialists on researching creativity proves that the man of our times is aware of the necessity to adapt to the new demands of society. This objective can be attained only through the training of children, so that they can develop and form creative personalities. (Munteanu, 2003)

The question that is often asked now is: from where and how do we start this difficult yet essential activity of increasing creativity? There is one answer: we start with the educational system, therefore with the school, but school results don’t reflect creativity in an exact way, so they represent a faulty and incomplete criterion for the diagnosis and the promotion of the pupils.

Creativity has been considered to be a specific form of the human thought, a problem-solving one, Guilford seeing these two processes as being the one and the same. This concept says that any problem-solving contains a dose of creativity, the same way any creative process implies a solving of problems.

A particularly important aspect for creativity is to find the right way to formulate problems, so it involves problem-finding rather than problem-solving. The term problem-finding becomes in this context synonymous with problematization. Problematization, also

known as the discovery and generation of problems, represents the essence of the process of creation. (Zlate, 1999)

The concept of creativity has a larger meaning, according to which this refers not only to the creation of new products that are valuable for the society, but also to the finding of solutions, ideas, problems, methods which are not new for the society but that have been achieved through an independent way. This type of meaning for creativity must be of focus especially for teachers in their instructive and teaching activity. “Every time a child finds himself in front of a problem, he rearranges its information or he imagines the steps that lead to the solution. Whether this problem is a school assignment, a daily assignment or a test, he is making an invention” (Ionescu 2000)

Looking at certain behaviors that are regarded as symptomatic for creativity, like the capacity to use their time in an attractive way, the tendency to go beyond school assignments and do extra curricular activities, the courage to try something new, the amount of questions like “why?” and “how?”, all these are eloquent and objective predictors for creativity, but they don’t offer anything more than partial measurements for the creative profile of a pupil. (Ionescu, M., 2000)

The teacher must make efforts to for and develop creative abilities and behaviors in his pupils. The ways and methods the teacher can use for cultivating the creative abilities of pupils are numerous and varied, among which there are included: the creative behavior of the teacher, the positive attitude in front of the display of creativity from pupils, the prevention and the elimination of the barriers and blockages of creativity, the usage of active methods, the participation in training and not the very least, the usage of specific techniques of stimulation and cultivation of creativity. (Munteanu 1999)

The investment in creativity is one of the most profitable actions but it is a long term investment. It can fundamentally contribute to the rising of a nation and also to the improvement of its genetical pool. It can lead to the development of the social intelligence, of the inventive imagination and also to the formation of creative personalities.

2. Methodology

The research has been conducted on 193 subjects, among which 99 are from an urban background and 94 subjects are from a rural background. The examined sample is composed of subjects that have between 14-15 years of age (8th grade) and between 17-18 years of age (12th grade). The following psychological tests have been applied: Raven Matrices Test, The Verbal Intelligence Test, Rybakoff Test and the Bricks Test.

3. Results and discussion

Hypothesis 1: The spatial-mechanical structure of the general intelligence has significant correlations with the elements of creativity.

After the Raven Matrices Test has been applied, we have obtained the mean $m = 41,860$ with a standard deviation of $\sigma = 10,1948$ at the level of $n = 193$.

From the perspective of the impact on the elements of creativity (fluidity, originality, flexibility), this general intellectual level, saturated in spatial-mechanical factors, significantly correlates with a significance level of $p < .01$ with the aforementioned creativity factors, in the following ways:

- With verbal fluidity $r = .500$

- With expressive fluency $r = .370$
- With general flexibility $r = .300$
- With unusual usages $r = .500$
- With originality - the improvement of product $r = .170$
- With originality - consequences $r = .333$

This data can be also be seen in table 1.

Table 1. The correlations between the Raven test and the factors of creativity

	Fluidity		Flexibility		Originality	
	verbal	expressive	general	unusual usages.	improvement	consequences
Raven	.500	.370	.300	.500	.170	.333

The conclusion that can be drawn is that the element or the spatial-mechanical structure in the general intelligence is in a significant relation with the elements of creativity, having an important influence in creativity when it comes to fluidity, flexibility and originality.

Hypothesis 2: There are significant differences concerning the spatial-mechanical QI factor according to the background of the subject.

When comparing the urban background sample with the rural background sample, a significant correlation was established, $z = 5,1810$ at a significance level of $p < .01$. The correlational analysis of the above mentioned situation showed a biserial correlation of $r = .373$, with a significant level of $p < .0$.

The conclusion from the above mentioned indicators (also presented in table 4.1) is that the backgrounds of the subjects significantly influences the level of the spatial-mechanical factor, in the general intelligence structure, which in turn significantly influences the elements of creativity like fluidity, flexibility and originality.

I believe that a possible explanation for this situation is the existence of differences of inter-correlation of factors and the background, the hereditary and the education of the subjects in the forming of their personalities, both at the level of the 8th grade pupils and at the level of the 12th grade ones.

Hypothesis 3: There are significant differences at the situational-mechanical factor in the QI according to the age factor

When it comes to the age and the grade of the subjects, the statistical analysis showed that, as Piaget’s theory on cognitive evolution suggests, the differences between age categories are significant: $z = 5,489$ $p < .01$.

The analysis of the differences between the age categories or grade categories according to the background have been analysed (table 2)

Table 2 The comparative situation between the two samples (rural/urban backgrounds) by using the age category and the Raven test

Age years	Urban backgrounds			Rural backgrounds			Differences	
	mean	significant deviation	n	mean	significant deviation	n	z	p
14 – 15	33,83	9,92	54	43,02	8,64	50	5,05	< .01
17 – 18	42,40	8,78	40	49,08	6,36	49	4,04	< .01

As we can see in table 2., there are significant differences at the same category of age, but from different backgrounds.

The conclusion that we can draw is that the cognitive aspect of the spatial-mechanical factor significantly influences the level of creativity through the lens of fluidity, flexibility, originality, and at the same time, the general intellectual level is significantly influenced by age and background.

4. Conclusions

After the statistical calculation of the data, the hypotheses were confirmed. The important aspects are not the general creativity predictors, but those specific creativity predictors that function in school, this being one of the most important institutions. Every individual is an ex-participant in school. By training him in a creative way, he will manifest in a creative way in society. The affirmation “you reap at the societal level the creativity that you have sown at the school level” proves to be true. Therefore, the nonspecific methods of the identification and the measurement of creativity in school, which are specific to the teacher, are without a doubt the following ones: school results, extracurricular activities and certain behaviors of the pupil.

Some specialists support the idea the introduction of special creativity classes, while others advocate for the restructuring of every class from the perspective of stimulating the general and specific creativity of every pupil. In this context Roșca (1981) specified that “creativity is regarded much more as being teachable through social-educational conditions than superior intelligence and how this was perceived before”. As a consequence, an important role is now played by the education for creativity. An optimal way is being researched for the adoption of the education for creativity, with the purpose of stimulating and training creativity.

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