

THE IMPACT OF GROUP EXERCISES ON CREATIVITY

Summary: The methodology for creativity cultivation is one of the main concerns of the educational practice. In the same time it represents a topic of interest for applied research in the field. The register of methods is very large: brainstorming, sinectics, Frisco method, Delphi method, Bono's method of colorful hats, panel discussion.

The experiment presented in this paper aims at highlighting the students' participation in an interactive program focused on the development of creativity. The program is focused on *methodological component* (involving the use during courses and applications of methods such as fishbowl technique, AIDA, GAP, sharing opinions, STAD, Frisco method, jigsaw, brainstorming, different votes, constructive controversy).

The findings of this study reveal a positive impact of the measures undertaken during the experimental stage on the students' training, regarding: the level of creativity, the cognitive acquisitions and the behavioural changes.

Key words: creativity, interactivity, methods.

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Creative learning

Creative learning is a special form of learning. The subjects of education, on the basis of intellectual and affective-volitive equipment they own, benefit from a certain instruction which leads to the constitution of personality with a creative behaviour. The creative person faces the problems with an uncertain character that life brings in. This is why the instruction, by its objectives, aims that its participants should mentally-operationally explore the alternatives; to solve problems; to make decisions; to build problems, systems of ideas which are necessary for their solving, their application into the ideas' plan; to elaborate ideas they should use in order to state decisions and solve the problems of life through action; research, discover.

As I. Neacșu (1990, p. 12) states “today, the educators are continuously required to promote effective learning. And not any effective learning but a participative, active and creative one.” C. Oprea proposes the concept of interactive-creative learning, “ This process appears as a consequence of individual and

collective efforts, of the educated person's interaction with other people based on social exchanges in the acquisition of the novelty" (2008, p. 159).

Answering more efficiently to the needs of problem solving, the group creativity was imposed with the following characteristics, as compared to the individual one (Mihuţ, *apud* Oprea, 2008, p. 169):

- the efficiency in solving complex problems;
- the independent judgement but also dependent on the ideas and knowledge of the other members of the group;
- systematic, multilateral-explorative thinking, flexibly guided and without prejudices;
- increased capacity in the production of ideas, stimulated by the action of many potential creative individuals;
- multi-criterial system of evaluation and classification of ideas;
- force in the application and capitalization of the novelty;
- the tolerance of risk and the avoidance of failure by the chance of finding an acceptable solution;
- source of stimulating the creative potential of the individual and the collective.

Working in a climate which imprints trust, optimism and encouragement to the participants and using work tasks which offer not only information but also different ways to operate with them, which solicits divergent thinking, the trainers form, educate and develop the creative potential of the trainees. These ones must be let manifest their curiosity, spontaneity, initiative and the evaluation must be done according to the parameters of the creative act, through interactive-creative learning, educating the sensitivity to the others' ideas and feelings.

Research Design

The experiment presented in this paper aims at highlighting the students' participation in an interactive program focused on the development of creativity.

The hypothesis to be verified is: *the frequent use group exercises will lead to the development of students' creative thinking and positive attitude for learning.*

The sample was made up of 86 subjects – students enrolled in the programme of psycho-pedagogic studies, level II. We chose *an experimental pretest / posttest plan with equivalent groups*. A number of 43 subjects were included in the control sample whereas another 43 subjects were included in the experimental group using the technique of equivalent samples. The equivalence between the control group and the experimental group was ensured by using the criteria constituted by the domain of studies.

Research methodology. It was chosen the dynamics of a development experiment, by using group exercises. The purpose of the research required the use of a set of methods aimed as data collecting, processing and presentation. Among the psycho-pedagogic research methods we chose a method which corresponds to the requirements of an *experimental research*: the method of *the written questionnaire inquiry*. The statistic-mathematical processing required the use of the

following modalities: *tables of synthetic results, determining the central trend, identifying the correlation.*

The stages of the experiment. The research supposed the passing through the following stages:

Pretesting. It was performed by the application of the questionnaire both to the subjects from the control group and the subjects from the experimental group. The subjects from the control group attended the subject matters of the psychopedagogic training programme organised in traditional manner, using methods such as: lectures, role play, conversation, case study, debate, project elaboration etc.

Experimental treatment. The subjects from the experimental group will attend the study programme, focused on methods such as: fishbowl technique, GAP (the group of professional thoroughness), Frisco method, jigsaw, brainstorming, SWOT (Strengths – Weakness – Opportunities – Threats); IDAA (Interactive Decision Analysis Aids), different votes, constructive controversy, STAD (Student Team Achievement Divisions). We selectively present some interactive group methods and techniques used during the experiment.

Fishbowl technique. *It is also called “ theatre in circle”, this method pursues the degree of interaction and reciprocal influence between the group members. The involved participants are placed alternatively in a double state: on the one hand, the active participants in a debate and on the other hand, observers of the interactions which take place (Pânișoară, 2008, p. 360). In this research, the fishbowl technique was used for the theme **Change or resistance to change.***

GAP (the group of professional thoroughness). *The method of the group for professional thoroughness allows the exchanges of information and experiences between the didactic staff participating in the formation. The themes are necessarily centred on the professional activity of the students (Legrand și Boniface, 2001 and Pânișoară, 2008). The method was used for the presentation of the theme **Positive attitudes – negative attitudes of the students towards learning.***

Frisco method. *It was proposed by the research team **Four boys of Frisco/San Francisco**, the method aims the identification of complex and difficult problems and their solving in simple and effective ways (Oprea, 2008, p. 224). Supposing the approach of a problem from several perspectives, the Frisco method has as main characteristic the attribution by the moderator and the interpretation by the participants of some roles; the traditional (the conservative), the exuberant, the pessimist, the optimist. We proposed for analysis a problem situation: **the traditional or modern in teaching-learning.***

IDAA (Interactive Decision Analysis Aids) *are used when several problems or situations are interconnected, the solution of one of them affecting directly the others' solutions. In this research we concretely focused on finding solutions for the simultaneous achievement by the adult student of the theme **The roles of student and employee, parent, spouse, citizen.***

Posttesting. The activity took place in a differentiated manner in control group and in experimental group. We applied the same questionnaire to the subjects from the two samples, with the purpose of identifying the effects of the group methods.

Analysis, processing and interpretation of the data obtained. In the case of our research, the experimental demarche supposed the measurement of the dependent variable before and after the introduction of the experimental treatment (Popa, 2009, p. 88). It consisted on the inter-group comparisons (between the experimental and the control sample in the pretest and posttest phases and intra-group comparisons (within the same sample related to the moments of the pre-test and post-test.

We found the following:

- In the pretest phase, the differences between the experimental and the control group are not statistically significant;
- In the posttest phase, between the experimental and the control groups we remark the existence of significant differences (of approximately 1 point) for all the indicators;
- For the control group, the results are better in the posttest phase compared to the pretest phase, the inference tests revealing significant differences for the *acquisition of new information* indicator ($t=-7.896$ to $p=.000$);
- For the experimental group, the results are significantly better in the posttest phase for all the assessed aspects: *interpretation capacity* ($t=-10,254$ la $p=.000$), *selective analysis of ideas* ($t=-8.430$ to $p=.000$), *acquisition and systematisation information* ($t=-9.946$ to $p=.000$), *creative and reflexive thinking* ($t=-4.841$ to $p=.000$); *motivation and interest for learning* ($t=-4,413$ la $p=.000$), *will and desire to learn* ($t=-2,816$ la $p=.005$), *learning satisfaction* ($t=-2,407$ la $p=.016$).

We present the statistic data:

Medium values for the progresses due to the interactive methods							
	Inter-pretation capacity	selective analysis of ideas	acquisition and systematisation information	creative and reflexive thinking	Motivation and interest for learning	will and desire to learn	learning satisfaction
Gc pre-test	3,77	1,80	3,47	2,08	3,57	3,95	3,75
Ge post-test	3,60	1,93	4,30	1,71	3,55	3,75	3,63
Gc pre-test	3,63	1,92	3,80	1,87	3,43	3,82	3,68
Ge post-test	4,71	2,55	4,98	2,51	4,23	4,25	4,06
The results of the inferential processings for the experimental group							
T test	-10,254	-8,430	-9,946	-4,841	-4,413	-2,816	-2,407
P	.000	.000	.000	.000	.000	.005	.016
r	creative thinking			attitudinal changes			
	0,892 - strong connection			0,957 – determinist connection			

The results reveal that the level of creative, cognitive and attitudinal indicators in experimental group is clearly superior to that found in the case of the control group. The success of intervention is sustained by the correlation connections between the variables of experiment:

- strong connection between the frequent use of group exercises and the level of creative thinking ($r = 0,892$);
- determinist connection between the frequent use of group exercises and attitudinal changes ($r = 0,957$).

Conclusion

From the comparative analysis of the results of the control and experimental group, it results a positive impact of the measures undertaken during the experimental stage on the students' training, regarding creative thinking, cognitive acquisitions and the attitudinal changes. So as to conclude, *the frequent use of group exercises learning will lead to the development of students' creative thinking and positive attitude for learning.*

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