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COOPERATION AND COLLABORATION IN INTERACTIVE PEDAGOGY

1. INTERACTIVE PEDAGOGY

One of the main orientations of modern didactics is focussed on taking distance from the scholar methods, based on conditioning, memorisation, repetition and on the promotion of methods which are centred on the interactive participation and the direct or indirect interest of the trainee in his/her own formation and cognitive development.

The person who learns actively/interactively is „his own initiator and organiser" of learning experiences, able to permanently reorganise and restructure his/her own acquisitions. Learning does not suppose a simple recording of knowledge, but it implies cognitive, volitional and emotional effort, achieved in an easier way and more efficiently when the individual is involved in an inter-human relationship based on mutual exchange of messages, thus, obtaining benefits for those involved. The educable person must be approached as a complex personality, taking into consideration his/her intellectual potential, he/she must be seen as a person who comes to acquire knowledge, to develop himself/herself, to model his/her personality, based on the intellectual liberty and autonomy. Achieving this desideratum is possible only by practicing an interactive pedagogy which encourages the personal relationship and transforms the educable person in an active actor of the educative act (Bocoş, 2002).

M. Bocoş (2002) and M. Ionescu (2003) approach the interactive pedagogical orientations in opposition with those of classical pedagogy, thus:

The comparison element	The attributes of interactive pedagogy	The attributes of classical pedagogy
The paradigm to which it is reported	Systematic (the whole is studied)	Analytical (the parts of the whole are studied)
The organisation of the class/group	Cooperative	Competitive
Encourages:	Interactions and intellectual exchanges, collaboration and cooperation	Individualism and competition
How do we regard the class group?	As an educative community in which they learn to be with each other	As a group where they learn to be next to each other
Who takes decisions regarding what and how the educable persons will learn?	The educable persons themselves can make decisions	The teacher
How is the educable person regarded?	As an active/interactive participant, authentic subject of education, authentic author in the educational act	As passive participant, object of education, passive receiver of knowledge
How is the teacher regarded?	As mentor, guide, organiser, collaborator, tutor, facilitator	Transmitter of knowledge
How does the teacher guide instruction?	In an indirect, non-directive, non-strict way	In a direct, directive, strict way
What does the educational communication consist in?	Expressing their own opinions and their communication to the teacher	Sending the already processed information to the educable persons
Educational bet	Highlighting the fact that the educable person has diverse representations, reflects, seizes upon the complexity of a problem, investigates, discovers new knowledge, forms abilities, capacities, behaviours	Sending a volume of knowledge
The process of knowledge consists in:	The construction of new acquisitions by the educable person	Receiving the already processed knowledge
Essential in learning is:	The process and way of thinking	The product, the volume of knowledge
The type of aimed functional knowledge:	Scientific, procedural strategic and declarative knowledge	Scientific declarative knowledge
Aimed types of savoir:	Cognitive Savoir-faire, practical savoir -faire, savoir-etre and savoir-devenir	Predominant savoir Prevalent savoir
It is promoted:	Formation and self-formation	Information
The prevalent type of learning	Active/interactive learning through intellectual activity and inherent practice	Passive learning through reception

The involvement degree of the educable person	Large, tending towards cognitive and educational autonomy	Practically null
Type of motivation	Intrinsic	Extrinsic
The relation teacher-educable person	Encourages the cognitive and educative autonomy	Encourages the dependence on the teacher
Feed-back	Formative and summative	summative
What evaluation is used?	Continuous, formative	Final, summative

Table 1. Comparison: interactive pedagogy – classical pedagogy

The interactive pedagogy approaches the relation educator-educable person as a tutorship in which the teacher is an actor in different roles and hypostases, thus (Bocos, 2002, p. 75-76):

- o *educator* who practises a non-directive pedagogy and does not impose information, ideas, opinions;
- o *planner, tutor, manager, moderator, organiser and administrator* of contents, activities and formation activities;
- o *mediator* of learning, facilitating the bond between trainee and his/her knowledge;
- o *facilitator* and help in learning, letting the trainees learn as apprentices;
- o *accompanist,* the trainee's partner;
- o *coordinator and councillor* in the trainees' personal work;
- o *interlocutor* who opens discussions spaces, entertains the educational communication and makes knowledge operative;
- o *evaluator and supportive* of educational activities;
- o *resource-person,* thinking and proposing tasks for the trainees which should provoke their active and full involvement;
- o *mentor,* the trainees permanently communicating and soliciting with him/her, etc.

The active/interactive trainee is the one who tends towards autonomy in learning/formation, who learns on his/her own, individually, independently and in a personalized way, who reflects on his/her own person, researching and self-understanding and who manifests a positive attitude, positive and favourable to permanent education.

2. LEARNING THROUGH COOPERATION AND COLLABORATION

The cognitive and socio-affective interpersonal and group processes developed in the framework of learning activities are directly dependent

on the type of purpose structures established by the teacher, identified by M.H. Dembo and M.J. Eaton, thus (according to Bocoş, 2002, pp. 211-212):

- structures of *cooperative* purpose (the participants work together, they make convergent efforts in order to fulfil the common purposes and form collaboration abilities);
- *competitive* (the participants work against each other in order to fulfil purposes that only some of them can reach);
- *individualist* (the fulfilment of a participant's purpose does not have a connection with the fulfilment of another participant's purpose)

The initiation of the socio-cognitive conflict, specific to the interactive learning, leads to the establishment of *collaboration*, *cooperation* and *competition* relations in the group.

2.1. Collaboration and cooperation in interactive learning

Although the terms *collaboration* and *cooperation* are often used as synonyms, some assignations are necessary. According to DEX, **to collaborate** means to participate actively in the achievement of an action or a masterpiece which is commonly achieved and **to cooperate** means to work together with someone, to collaborate, to lend someone aid. Likewise, L. Handrabura (according to Oprea, 2008, pp.147-149) makes some delimitations of meaning, by *collaboration* we understand a „form of relationships" between pupils/students, which consists in solving some problems of common interest, in which everyone contributes actively and effectively and through *cooperation*, a „form of learning", of study, of mutual interpersonal/inter-group action, with variable duration which results from the reciprocal influences of the agents involved. From a notional point of view, learning through collaboration detains a large sphere, including learning through cooperation. Collaboration (the active participation to the achievement of an action, based on the exchange of proposals, of ideas) includes cooperation (to pull together, to work next to somebody else).

Collaborative learning is an umbrella-term for a variety of educational approaches which supposes the combination of intellectual efforts of pupils and teacher (Goodsell et al., according to Bocoş, 2002, p.211). Cooperative learning is a form of collaborative learning, an instructional technique in which the pupils work in groups in order to reach common goals, each of them contributing to this one in their own ways (Stover et al., according to Bocoş, 2002, p. 211).

Talking about learning through cooperation and collaboration, Bruffee (1999) considers that these two learning models were developed for trainees with different ages, experiences and levels of knowledge. The author approaches the collaborative learning as a broader concept, including learning through cooperation as an interactive component. Bruffee (1999, pp. 87-89) identifies the differences between learning through collaboration and learning through cooperation:

Learning through cooperation	Learning through collaboration
Learning through cooperation highlights the individual responsibility, facilitating the control of the students' participation in groups.	Learning through collaboration highlights the self-guidance in the construction of knowledge within the groups.
The technique of learning through cooperation is suitable for the primary and secondary school.	Learning through collaboration better enfolds to the requirements of the high-school and universities.
An important purpose of learning through cooperation is to make the trainees responsible for collective learning.	An important purpose of learning through collaboration is the exchange of informal authority of the class from teacher to the trainees groups.
Learning through cooperation supposes the establishment by the teacher of a systematic structure in which all members must cooperate in order to fulfil the task.	In cooperative learning, the teacher tends to present trust in the self-guidance of the trainees, in the context of engagement, conversation and negotiation.
Learning through cooperation is seen as being suitable for fundamental knowledge.	Learning through collaboration is seen as being more suitable for the learning knowledge which supposes a critical approach of learning.

Table.2. The differences between learning through collaboration and learning through cooperation

Learning through collaboration represents „a strategy which involves the pupils in supporting group and team learning, developing the individual responsibility in the context of the relational interdependence, in the framework of which the members discover information and *they mutually teach each other*" (Oprea, 2008, p. 147). Learning through cooperation determines the personal development through self-awareness actions in the framework of small groups. It solicits tolerance towards the different ways of thinking and feeling, giving value to the pupils' need to work together in a friendly climate of mutual support.

Learning through collaboration is based on work together in which everyone has different roles and functions (Cerghit, 2006, p.75), and learning through cooperation supposes activities together with tasks and distributed purposes, with individual functions and responsibilities among

the members of the group, everyone subjecting their efforts to the common result for everybody's benefit (Danciu, 2004, p. 85). The collaboration is focused on tasks and cooperation on the process of task achievement. Collaboration is a form of superior interaction in the framework of learning including cooperation.

From constructivist perspective, cooperation represents a specific application of collaboration, a „way of organising the pupils' actions to build understanding of a problem, a strategy in which the dimensions acquired by collaboration become worthy (…). The collaboration influences the level, the model, the rhythm, the quality of the construction through cooperation, through confrontation, through common solving" (Joița, 2006, p.108). The first reflects a way of establishing a relation which becomes a learning environment, offering organisational conditions for the exchange of ideas, and the second one represents a form of learning, method, the way of solving a task. Cooperation is an applicative form of collaboration (idem, pp. 179-185).

Both collaboration and cooperation suppose that „group, team spirit" is an integral part of competence, that „mixture, specific to each individual, of refinement, in the strict sense of the word, of team spirit, of initiative and capacity of assuming responsibilities" (Delors, 2000, p.72).

„Regardless of nuance, what is common to both variants is the fact that they offer an increase of ideas and solutions, facilitate a larger transfer of knowledge and thus, they increase productivity of intellectual work, create a state of satisfaction, a success sensation" (Cerghit, 2006, p. 75). They represent learning methods due to the desire to highlight the emphasized individualization of instruction and the neglect of the social dimension of learning.

2.2.2. Cooperation group

In the context of learning through collaboration, a special attention is given to the group. "The group is a dynamic psycho-social field, formed by an assembly of persons whose unity results from a community of collective type and from the interdependence of individual styles. These persons, either voluntarily connected or not, are aware of each other, they interact and they influence each other directly." (Leclerc, according to Neculau, 2007, p.28).

This approach supposes the report to three fundamental characteristics (Neculau, 2007, p. 28):

1. the group involves an understanding of the appurtenance to a collective entity to be located easily;
2. the group is founded on a certain community of collective type and on its members interdependence;
3. The group permits a direct interaction between its members.

However, to group in the context of the learning process activities means more than asking the participants to work together. The main objective of group work is to actively involve the trainees in the learning process when there is a common goal accepted by everyone. The group allows the participants to work together in order to maximize their own learning and that of others.

Today we often speak about the evolutional trajectory group-team, Neculau (2007, p. 103) synthesised in the statement "from group to team". As a result, from the perspective of interactive learning and of the pathway group-educational team, we consider pertinent the highlight of the basic characteristics of the group and team.

Bogatta, Cottrel Jr., Meyer have elaborated an analysis instrument which is based on 14 group characteristics (according to Pânişoară, 2008, p. 222):

1. *autonomy* – level at which the group functions independently from other groups;
2. *control* – the degree in which the group regularizes the behaviour of its members;
3. *flexibility* – the way in which the group activities are marked by informal procedures in a larger measure than the adherence to structured procedures in a rigid manner;
4. *the hedonic tone* – degree in which the participation of the members to the group activity is supported by the feelings of agreeable and pleasure;
5. *homogeneity* – measure in which the members of a group possess similar characteristics;
6. *intimacy* – degree in which the group members are familiarised with personal details from other members' life;
7. *participation* – the measure in which the group members invest time and effort for the group activities;
8. *permeability* – level at which the group allows the access of persons from the exterior to the quality of group member;

9. *bias* - measure in which a group is oriented and works having in view to reach a common purpose of its members, clear and specific for all these;

10. *power* – the degree in which the group is important for its members;

11. *measure* – the number of group members;

12. *stability* – measure in which a group persists after a period of time, having in general the same structural characteristics;

13. *stratification* – the level at which a group hierarchize its members according to statutes;

14. *cohesion* – the measure in which the members of a group function as a unit.

Roger Mucchelli, in his paper „Le travail en equipe" (1984), identifies seven characteristics of the team (according to Neculau, 2007, p. 107):

1. *a reduced number* of members – condition for increased efficiency;

2. the quality of *interpersonal relations* – network of living connections, which are formed during the actions of the team;

3. *personal engagement* – the team represents a conscious interdependence where everyone comes with its competence, an action unit;

4. the team is *a particular unit in development* – it is not only a spirit unit, but also a social one, an organism in evolution;

5. the team presents itself as *intentionality towards a common purpose*, accepted and desired by all its members. The cooperation takes here the form of co-responsibility;

6. *Constraints* within the team are the result of the orientation towards the common objective;

7. *The organisational structure* of the team varies according to the type of action, objectives and the specific context.

C. Louche (2002) has identified some features of the team as work group (apud Neculau, 2007, p. 108):

- the team constitutes a clearly defined entity, compared to the restraint group which can be less contoured, less net;

- the team constitutes a complete social system: has objectives clearly defined, the roles are differentiated, the ways of interdependence between the participants are precisely traced;

- the tasks are traced by an instance exterior to the team, but the team is responsible for their achievement and can be evaluated;

- The activities of the team take place in relation with the environment or with the context in which the team activates. The relations with the environment represent one of the objectives of the team, as tasks to be achieved and they contain rights and obligations clearly stipulated.

Thus, the team is "a restraint group in which the relations are direct (everyone knows everyone) and precisely traced, and the climate reflects itself in the spirit unit and action of participants, in the team spirit. […] The relation cohesion-performance acquires a supplementary value. The team is characterised by the high spirit of cooperation, by the emotional fusion of the members, by a positive ethos and a desire to eliminate the tensions and the eventual socio-affective blocks" (Neculau, 2007, p. 106).

The "special" types of group/team – groups/educational teams are defined by I.-O. Pânişoară as being "the micro-groups resulted from the division of the collective of trainees by a variety of techniques, micro-groups which are formed for the achievement of one or more educational tasks, achieves simultaneously objectives of informative type (understanding of a subject) and some of formative-motivational type, with an increased degree of efficiency, compared with the whole class or an isolated individual" (2008, p. 214).

Referring to the educational team, Pânişoară highlights the distinction between *the didactic team* (simple division of the class in micro-group which must fulfil certain objectives) and *the educational team* (where, besides the specific mechanisms of the didactic team intervene structurally or destructurally: the internal educational climate, motivation for work in the respective group, assuming roles, etc) – idem.

3. EXPERIMENTAL RESEARCH

The optimization of the instructive-forming process was and generally, it still is the main preoccupation of the educational system and especially of the continuous training system.

3. 1. Research hypothesis

The hypothesis which must be proved is: ***The Implementation of an interactive program of continuous formation (based on the cooperation and collaboration) leads to the modelling of an attitude of higher involvement and responsibility of the trainees towards improvement.*** The

attitudinal-behavioural manifestations which are to be positively modified are the following: interest in formation; responsibility; motivation for learning; enhancement of will; positive emotional feelings; entrainment in activity; trust in formation; obtained satisfactions.

3.2. Research methodology

Investigating the activity in the framework of the improvement programs has required the use of a set of methods of data acquisition, processing and presentation which are presented in Table 3:

Methods of data acquisition	Methods of statistical-mathematical processing		Graphical methods
The experiment	Determination of the central tendency		bar graphs
	Determination of the correlation	Mann-Whitney U Test	
		T Test	
		Bravais-Pearson Correlation	areolar diagrams
Questionnaire based inquiry	Tables of synthetical results	based on frequency	
		based on average	frequency polygons

Table 3. Research methodology

3.3. The experimental design

Having the proposed purpose in mind, we have chosen *an experimental plan of pre-test/post-test type with equivalent group*s. The experimental design was supposed to cover the following stages:

      3.3.1. The selection of the sample (the control group and the experimental group, made up according to the random procedure). The participants in the experiment were selected from the total of 512 didactic staff who participated in the study. Thus, 256 participants were included in the control sample and 256 persons in the experimental sample. Ensuring the equivalence between the control and experimental group was achieved by the use of the criteria constituted by age and length of service (Table 4):

The experimental sample				The control sample		
	2007	2008	2009		2007	2008	2009
Age	(n =)	(n =)	(n =)	Age	(n =)	(n =)	(n =)
20-35 years	11	13	17	20-35 years	11	13	17
36-50 years	42	37	42	36-50 years	42	37	42
≥ 50 years	37	28	29	≥ 50 years	37	28	29
Length in service	(n =)	(n =)	(n =)		(n =)	(n =)	(n =)
5-10 years	5	7	5	5-10 years	5	7	5
11-20 years	24	35	30	11-20	24	35	30
≥ 20 years	50	51	49	≥ 20 years	50	51	49
TOTAL	N = 256			**TOTAL**	N = 256		

Table 4. Groups equivalence

3.3.2. Pre-testing was achieved by the application of the questionnaire to the persons in the control group and to the persons in the experimental group. The persons in the experimental group have attended the Continuous Formation Program organised in a traditional manner containing the official themes and using methods such as: lecture, role play, conversation, case study, debate, projects elaboration, brainstorming etc.

3.3.3. Experimental treatment. In the framework of this stage, the trainees in the experimental sample have participated in inciting themes and this was based on methods such as: aquarium technique, AIDA, GAP, sharing opinions, Frisco method, jigsaw, storm of ideas, differential votes, constructive controversy.

3.3.4. The data analysis and interpretation has pursued the comparisons experimental group - control group in the pre-test and post-test phases (we have observed significant differences only in the post-test) and the comparisons pre-test – post-test for both groups (statistical data indicate significant differences for all the attitudinal-behavioural indicators in post-test only in the experimental group). The connections between the variables confirm the success of the experimental action (Table 4):

AVERAGE VALUES FOR THE ATTITUDINAL-BEHAVIOURAL MODIFICATIONS							
	trust in training	interest for trai-ning	will amplify-cation	positive emotion-nal feelings	motiva-tion for learning	Entrain-ment in the activity	Response-bility
Gc pre-test	3,80	3,57	3,95	3,73	3,75	3,38	3,52
Gc post-test	3,40	3,55	3,75	3,40	3,63	3,03	3,13
Ge pre-test	3,50	3,43	3,82	3,63	3,68	3,22	3,02
Ge post-test	3,93	4,23	4,25	3,93	4,06	3,81	3,83
THE RESULTS OF THE INFERENTIAL PROCESSING FOR THE ATTITUDINAL-BEHAVIOURAL MODIFICATIONS IN THE POST-TEST PHASE							
U Mann-Whitney	1213,500	1128,500	1269,500	1235,500	1372,500	1174,500	1193,500
P	,001	,000	,002	,002	,009	,000	,000
THE RESULTS OF THE INFERENTIAL PROCESSING FOR THE ATTITUDINAL-BEHAVIOURAL MODIFICATIONS FOR THE EXPERIMENTAL GROUP							
T test	-2,055	-4,413	-2,816	-2,071	-2,407	-2,384	-3,404
P	.040	.000	.005	.038	.016	.017	.001
THE INTENSITY OF THE CONNECTION BETWEEN:							
	the frequency of the use of interactive methods and the attitudinal-behavioural progress		the inciting character and the interest degree for the training activity		the frequency of the interactive methods and the satisfaction degree after the training		
r	0, 957 – determinist connection		0, 971 – functional connection		0, 780 – strong connection		

Table 4 Research results

3.4. Conclusions:

➢ pre-test: there are significant differences between experimental and control sample;

➢ post-test: there are significant differences for all the indicators - *trust in training,* interest for training, will amplification, positive emotional feelings, motivation for learning, entrainment in the activity, responsibility

➢ control sample: the attitudinal-behavioural modifications are not statistically significant in pre-test and post-test;

➢ experimental sample: there are statistically significant differences in pre-test and post-test for: *trust in training* (t=-2,055 at p=.040), *interest for training* (t=-4,413 at p=.000), *will amplification* (t=-2,816 at p=.005), *positive emotional feelings* (t=-2,071 la p=.038), *motivation for learning* (t=-2,407 at

p=.016), *entrainment in the activity* (t=-2,384 la p=.017), responsibility (t=-3,404 at p=.001).

The values presented above lead to the conclusion of a successful intervention which is also confirmed by the correlation connections of the post-test phase between the variables of the undertaken experiment. Thus:

➢ the high frequency of the use of interactive methods lead to the attitudinal-behavioural progress in experimental sample (r = 0, 957 - determinist connection);

➢ the entrainment in the activity depends on cooperative learning methods (r = 0, 773 - strong connection);

➢ interest degree for the training activity depends on the inciting character and the interest degree for the training activity (r = 0, 971 - functional connection);

➢ the high frequency of the interactive methods lead to the high satisfaction degree after the training (r = 0, 780 - strong connection).

The attitudinal-behavioural modifications are significantly positive for the trainees/students who participated in the activities in which they used interactive methods. We appreciate that this effect is the result of cooperation/collaboration and the application of some interactive methods of teaching-learning in the framework of the intervention. These, besides being more efficient than the traditional ones, have a more attractive character for the student/trainee, which determines an increased interest regarding the improvement.

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