

The Constructivist Strategy of Training by Cooperation

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Abstract:

The constructivist instruction proposes to continue the independent explorations with learning activity by co-operation, first in a small group and then co-operation with the entire class. The co-operation is understood as a specific application of collaboration, as a superior level of achieving the common goals by reciprocally help within a smaller group.

The analysis of this training approach made by us aimed to identify the main advantages and also the limitations of the organization of teaching in a group. We have also shown the fact that the organization of training by cooperation depends on several factors, including: the nature of instructive-educational objectives and the teaching tasks arising from these, the types of outcomes pursued in learning, the nature of contents, the features and level of training of the participants, the organization of intervention of teacher and pupils/students, in close relation to their number, spatial and material conditions of endowment, available time, skills and teaching styles.

The integration in the group activity was studied by various researches who show that occur situations where people do not integrate from various reasons, therefore, the collaboration is a condition of cooperation and among the group members must be established the necessary feedback of any training situation.

The findings of our study argue for this variant of training, but not exclusive and excessive, and the solution is to combine the group activity, done in cooperation, with the work done by the pupil or student independently in various forms.

Keywords: constructivism, strategies, training, cooperation, feedback

1. The main contributions of the constructivist theory in training

Through constructivism in the educational theory and practice was produced the shift from instructivism – where the focus was on the role of the teacher in training to constructivism - which proposed switching to understanding the ways in which the pupils/students learn: by the active construction of knowledge (Fosnot 2005), first in their own way, subjectively, then through collaboration (Johnson and Johnson 1975, 1994, 2009) objectively.

The greatest merit of the constructivist methodology lies in its usefulness for learning, however, the constructivist pedagogy should not be considered exclusive, is considered as an alternative or complementary method,

especially at the level of designing, of attitude to teaching-learning evaluation and at methodological level. The ways of organization and reinterpreted methods of training propose to achieve the interactivity at the level of students/pupils, the cooperation, valuing the understanding and self-affirmation, requiring reflection (Brockbank and McGill 2007) and affirming the views of the learners.

The constructivist orientation rejects the idea that the social order is preserved only by internalizing certain norms and values that create consensus. In fact, the individual behavior is innovative, as it means interpretation; and just that enables the development of appropriate responses to changing circumstances without repeating the same solution mechanically, by applying the rules automatically (Brown and Adams 2001). Thus, the pupils/students and their teachers are facing problematic situations that they get solved, not by putting into practice mechanically a system of values-rules-norms that they have internalized it, but by a reflexive activity, which gives them a meaning, finally accepted by all, as they agree on the “rational” character of a certain way of interpretation or action in that situation.

At the higher levels of education, the pupils, especially students, and even more those who prepare to be teachers, are required for efficient cooperation competence in professional and interdisciplinary work teams, specific for conducting the projects and programs in education. In the social constructivism (initiated by Vâgotski), “the interpersonal relations, negotiations, confrontations, debates, group resolutions mediate the construction of the individual knowledge indicates each person which "zone of proximal development " has, which may be the remedies and solutions to achieve it, the appropriate roles for asserting the competencies.” Joița (2007, 11). In fact, the cooperative learning was from its beginning an alternative to "the excessive competition existing in the traditional training" (Barkley et al. 2005, 5).

The constructivist training faces a number of obstacles: when the approach is not working and teachers provide help in excess, where pupils, students remain blocked in the search details; it requires time and prolonged effort in training and can be hampered by the relatively critical attitude, the weak or restricted connections in knowledge, especially, by the poor communication, self-expression, non-collaborative attitude of the participants.

2. The “Rationality” of training and strategies adopted

The training as the etymology of the term shows is the activity of preparation or systematic building of knowledge, skills and competencies of knowledge and action in the education process. The meaning of training is to produce learning, but this determination is not direct: the training is “the area in which the learning and teaching meet each other in a planned and conscious way” as showed Ioan Neacșu (1990, 151). The teaching is the intentional aspect of the educational process, designed and performed sequentially; it is in close

interaction with the learning and assessment, and also in relation of overlapping, meaning that the three activities are not separated activities. Neacșu (idem) expressed the relationship between teaching and learning suggestively by the term “co-evolution”.

The instructive strategies as interactions between teaching and learning and evaluation strategies are integrative ways of approach and action, are procedural structures, combination of methods, means and forms of organization, teachers-pupils relations (Cerghit 2002). In an extended sense the teaching strategies include, in addition to the previous items, the way of conducting the teaching communication, time allocation, tasks, interventions, nature of the evaluation exams.

The teaching and learning strategies are divided into the following types:

- by the degree of controlling the activity : guided strategies, half-guided strategies, unguided strategies;
- by the involvement way of pupils, students in discovery: heuristics strategies, algorithmic strategies;
- by the way of organizing the participants: frontal strategies, individual and group strategies;
- by the methods used predominantly: expository strategies, conversation, exertive etc.;
- by type of the thinking approach which the teacher asks learners: inductive, deductive, analytical, synthetic, analogue, transductive strategies;
- by the active field: cognitive strategies, action/psychomotor, affective and emotional;
- by the degree of originality of the actions of teachers and their pupils, students, imitative strategies, i.e. strategies based on automatism, on complex skills and innovative/creative strategies;
- mixed strategies (combined).

Most instructive strategies are mixed, combined, they are consciously chosen by the teacher, and their role is to ensure the environmental organization and the educational process.

The approach to develop a teaching strategy (Parent and Nero, cited Cerghit 2002, 278) comprises two phases: the analysis and synthesis phase. In the analysis phase are examined the real variables of teaching activity and the psycho-pedagogical factors which influence the activity. In the synthesis phase, the examination of the variables or existing resources leads to the establishment of certain approaches, methods, forms of activity, materials, resources, equipments, environmental organizations and, from assessing the psycho-pedagogical factors result ways of conceiving the participation, the organization of contents, compliance with paces, applying knowledge, learning motivation maintenance.

Marlowe and Page (2005, 25-31) considered that the constructivist theory focuses on the way how understanding is produced, which leads to shifting the accent from teaching to learning, from teachers' plans to educated ones' plans, from exposure to exploration/discovery, from presentation to interactive learning experiences.

In designing the constructivist training, Gagnon and Collay (2001) reviewed six major elements: the training situation, as a situation that facilitates the discovery, grouping the material and students, creating a fabric of knowledge, as link between old and new formulating questions, the exposure of results and reflection.

The modern training brings into focus a number of learning methods derived from the social learning theories (Negreț and Pânișoară 2005) and which are the core of the teaching-learning-assessment approach in such a paradigm: the learning by using other's help/reciprocal teaching, Socratic seminar, micro-groups for mentoring, the mosaic or Jigsaw method, reflexive teaching newspaper technique, Aquarium or the observed interaction method, discussion groups tutorials, Philips meeting 6-6, nominal group technique. Other methods, techniques of teaching-learning by collaboration (Kagan 1990) are known by far and have been adopted in the field of teaching domain: the gallery tour, the three-stage interview, "Pencils in the middle!" etc.

3.The principle of collaboration

As a result of the social influence, gradually, among the members of a community can be shaped relationships of accommodation, in the sense of getting used with one another, of mutual adjustment; assimilation relations, if it works the transfer mentalities and practices; stratification relations, based on the hierarchy of the owned statuses and the relationships of alienation - in case of incompatibility.

In the collaborative teaching-learning-evaluation, any participant can be leader, depending on experience and the steps/stages followed are negotiable, finding harmony being the main decision-making model.

Thus, the success of the learning depends on the interests, knowledge and action plans of the participants. In this case, the long-term goals are more important than the short-term goals and the key strategy is learning by experience, self-paced, team learning and applying the meta-cognitive control, with flexibility when choosing new goals and strategies, with the assessment focused on discovery and innovation, with continuous assessment, of progress.

Thorough or profound learning means networking, restructuring of the old knowledge, the analogy with the real life and its application, the development of particular competencies of knowledge and interpersonal and inter-group communication skills.

The most substantial researches on the collaborative learning belong to Vâgotsky, Bruner, Brown, Palincsar, Johnson and Johnson (in Oprea 2003). The

interactive teaching strategies are "group strategies that involve the collaborative work of pupils, organized into micro-groups or work teams, in order to achieve the intended objectives" (idem Oprea, 26).

The authors who analyzed the collaborative learning (Johnson and Johnson 1999) showed that it is aimed especially the elaboration of solutions to problems, by identifying more alternatives and the quality of the relationships includes variables such as the interpersonal attraction, the ties, the cohesion, the team spirit and the social support/help.

The student-teacher interactions are developed beneficially in some situations of collaboration and cooperation. It's about coordinating the efforts to achieve a common goal, and these situations avoid competition, the expression of rivalry, the competition in achieving an individual target or even the appearance of conflicts/serious misunderstandings by relating to an indivisible purpose. The cooperation is understood as a specific application of the collaboration, as the superior level of the achievement of common goals by mutual support in a smaller group, while the competition is most often defined as a competition to achieve an indivisible purpose..

Among the members of the group must be established the necessary feedback to any training situation (in this case – of communication). The students need feedback and from a strong desire of identity assertion, they seek to obtain this feedback from the teacher or classmates.

Regarding the group, Schmuck and Schmuck (1988) showed that it must vary to enable an accommodation of the differences, to require the thinking of all members, to be deliberately organized by the teacher, by support materials. The questions used, can be used to guide, to anticipate, to clarify or to integrate the views expressed.

4. The critical thinking and team thinking

By Nicolae Vințanu (2001) the main problems at the level of knowledge achieved by students are:

- the systemic organization of knowledge, but poor internal links among knowledge, attitude, values and action;
- the fixation on the concrete area and the generalization, extrapolation, sometimes abusive;
- grouping the notions incorrect, accompanied sometimes by tautological explanations;
- the anthropomorphic interpretation and original at any cost;
- the confusion of the qualities or attributes of phenomena and their relationships.

The critical thinking is that kind of the participatory thinking, with the examination, construction of arguments, placing the ideas into new structures. This kind of thinking intersects with active thinking both processes being influenced by the favorable environment created by teachers or everyday life

situations. Learn pupil/student to think critically and freely is one of the goals of the lifelong learning.

Meredith, Steele, Temple and Walter (1997) proposed a framework for developing the critical thinking that includes three stages: evocation, realization of the meaning/understanding, reflection. The project “Reading and Writing for Critical Thinking Development”, applied also in Romania, involves the use of certain tools that help pupils/students to learn actively, to think critically and learn through cooperation. In fact, the project relies on the fact that they are curious and can formulate creative ideas; the teachers can help them in this regard, forming them productive thinking skills, and these premises allow the formation of the democratic spirit.

The critical thinking aims to apply the new knowledge to a broader spectrum of the social and personal problems. This process includes: the formulation of questions and clearly defining the problem; examination of the records; assumptions and bias analysis, identification of other interpretations; avoiding emotional disorganization; accepting the uncertainty.

Valeria Negovan (2004) summarizes a number of conditions of administering the critical thinking skills:

- the logical and systematic examination of the issues arising;
- the definition and classification of the problems;
- evaluating the information associated with the data;
- assessing the adequacy of the solutions to the concrete situations;
- analyze the information coming from the senses;
- formulating and expressing personal opinions about what has been analyzed;
- performing an act, the formulation of an option, depending on what has been assessed.

The activism of thinking leads often to a critical perspective on the ideas perceived or constructed. Each student expresses his own interpretation that turns, becomes objective by confrontation and negotiation in the classroom and can reach the optimal thinking (Glikman 2003).

Within the thinking team can be used several variants: the delegation of the decision power; power sharing, by exchanging views; collaborative thinking: some work for solving the problems, others formulate questions about the process itself so that pupils or students help each other in developing a plan to support the cognitive processes.

5. The multi-factorial context of choosing the collaborative organization

The individual or group training organization depends on several factors: the nature of instructive-educational objectives, the types of learning outcomes pursued (knowledge, skills, abilities, capacities, attitudes etc.), the nature of the contents, the particularities and personal level, the level of the

whole class/group, the spatial and material endowment conditions, the time available, the teacher's skills and style, and the learning styles of pupils/students.

Gheorghe Dumitru (1998, 142-146) investigated the assessments/evaluations of students on the attitude of self-confidence, the attitude towards problematic situations, the socio-affective maturity, the social ability, the nature of interpersonal relationships (intolerance/understanding and cooperation) that arise in the learning activities by collaboration.

The integration in the group activity was studied in order to solve the situations where the students do not integrate due to various causes: the lack of similarity, the individualistic style etc. Not all students use the collaboration to learn, it is rather cooperation, the collaboration being in fact a condition, a learning environment as Elena Joița emphasized (2005).

Within the class-group, the interaction determines not only changes at the cognitive level, but also affective, behavioral changes. Seen as a medium of socialization, of social learning, the classroom or the group of students meets some basic needs: the need for affiliation, for another, participation, protection, security. More than a group, the team favors the optimization of the individual skills of the members, making possible to solve the difficult problems.

6. Advantages and limitations

The learning/work in group has strong educational values. Among these are included:

- socialization, social practice, the joint between personal and collective development;
- creating products, solutions, creative actions;
- social cooperation: the tasks of the members intertwine, they help one other;
- development of a benefic climate, of social integration.

There are, however, some negative effects of the activity in group (Ilie 2009):

- a) group thinking - the possibility of alteration the efficiency of the group to keep the existing normative framework;
- b) social laziness - lowering the individual performance because the future important tasks and activities are left to the group as a whole;
- c) the ineffectiveness of the group in case of differences among people;
- d) the lack of unity of the group by continuous restructuring trend, the struggle for power;
- e) the conservatism and group inclination to compromise (among objectives, interests and skills of the members);
- f) the underperformance of the group composed of members selected for their critical thinking;
- k) social contagion, when are imitated the same skills and attitudes of those of the leader or other people.

The interactive strategies present a number of formative values and limits (Table 1):

Table 1: Values and limits of the interactive strategies:
(adapted from Zlate, et al., 2011, 127)

Formative values	Limits
<ul style="list-style-type: none"> • building and development of certain functional competencies, such skills of processing, systematization, restructuring and practical use of knowledge; • training and development of capacity of cooperation, team spirit; • training and development of communication competencies; • training and development of psycho-social competencies; • developing the self-esteem; • cultivating the participatory spirit; • training and development of skills of active listening; • empathic capacity development; • building and development of the reflective and meta-cognitive competencies; • building and development of the capacity to investigate the reality; • building and development of argumentative capacity; • building and development of decision-making capacity; • building and development of negotiation competencies; • building and development of emotional competencies; • building and developing the capacity to provide feedback and be responsive to the feedback received; • cultivation of learning autonomy; • development of motivation for learning; • crystallization an efficient learning style; • critical thinking development, creative and lateral thinking; • developing creativity; • development of pro-social attitudes and behaviors; • development of reciprocal and self-assessment capacities etc. 	<ul style="list-style-type: none"> • creating an educational environment characterized by an apparent disorder; • time-consuming; • assimilation of erroneous information in the absence of the closely monitoring of the teacher; • “encouraging” the passivity of some students in conditions when the tasks are not distributed/made clear and in the absence of monitoring the group; • development of possible group dependencies in solving tasks; • the aggravation of some conflicts, under the conditions when the teacher (or the leader of the working group) does not intervene as mediator; • generating a “group-thinking”; • superficial approach of the work tasks; • difficulties in identifying and assessing the individual progresses etc.

Important is the *cooperation-competition report*, which contributes to the educational group dynamics. Although there is a current dispute between the benefits offered by these two practices, it should be insisted on their rotation, taking into account the particularities of the situation of training, the characteristics of the group and those of the component members. In the conception of our students, participants in a constructivist training experiment (2005-2007, project manager - Professor Elena Joița) - the benefits of cooperation and collaboration in the group were:

- the fact that the diverse opinions become the basis for learning through consultation, negotiation, interpretation;
- the mobilizing role of these strategies, which stimulates them, offers opportunities for affirmation, argumentation, verification, collation/correction;
- their usefulness for a good deepening of knowledge and achieving the knowledge completeness;
- the contribution of the cooperation for the immediate fixation processes, transfer in learning, identifying the similarities, convergences.

The students who have interacted in this way appreciated that are obtained better results than individually, and the creativity increases, while the time allocated for understanding is shorter, and the assessment is lighter (Frăşineanu 2005).

The same students considered that the disadvantages of the group cooperation and collaboration are related to the following effects:

- the effort made by them is uneven;
- arise difficulties to concentrate the attention;
- there are difficulties of harmonization of ideas when the group is heterogeneous, misunderstandings in discussions/debates, noise, disturbance;
- evaluation is inaccurate, imprecise;
- some students show their dominance or personal influence;
- persist or get activated some competitive, conflicting behaviors;
- more time is lost compared with the guided, collective strategies;
- remains little knowledge;
- individual characteristics are neglected (such as own action pace);
- there is the possibility of deviation from the topic or mistakes occur in the working group, which slows down the training pace.

An interesting effect reported by subjects included in the study sample was that it is possible to dissimulate the carelessness and failure in achieving understanding.

7. Practical ways for implementing the collaborative training

It is known fact that the students memorize better if they talk to others, especially if they teach others in their turn (explain to others). It is recognized the efficacy which generally the work in group has, but also for this there are

conditions related to the heterogeneity/homogeneity of the groups, the level of the pupils and their number.

For teacher, the groups organized activity requires the most (relative to other forms of organization) his managerial competencies.

The problem that has interested the students preparing to become modern teachers is the one of the participation, which is reflected in the valuation way of the group. In order to get close to the correct, objective assessment, establishing clear criteria, the division of labor and division of roles in the group may be used.

Those preferring the competitive style have into account the desire to succeed, of success and self-fulfillment, and those who advocate the cooperative style believe that the training is an exchange. The two styles are not necessarily mutual exclusive; they have situational value: the competitive style can be used in independent learning activity, having dynamic role for it, and the cooperative style is useful in learning activity by cooperation and collaboration, contributing to the group cohesion.

It is true that the learning style belongs to the subject of training, but it is formed by the influence of teacher's teaching style. To understand knowledge, the student must relate himself to other people, and the constructivist training reveals the advantages of this social openness, first to group of equals and then the teacher, by the social constructivism.

To continue learning through discussions, debates and decisions in small group (3-5 pupils/students) are required the capacities of description, comparison, identification, association, conclude from particular situations, anticipation and request for ideas.

The application the model of the cooperative and collaborative learning in group when learning Pedagogy was achieved by formulating collaborative learning tasks; the students have read/explored a text individually, they identified the keywords, questions, hypothesis and reflections, and then they formulated them in group of three to five persons, by comparison, negotiation, reaching a consensus.

In organizing the groups was taken into account the negative effect of acceptance, from group members, of the point of view of the most powerful among them. To prevent these situations were triggered cognitive conflicts, and the teachers requested the argumentation, first at individual level and then at the group level, they stimulated and balanced the interventions.

In terms of social interaction for its effects to be beneficial, we noticed that there should be no major differences among the participants of the training groups and also in terms of organizing the seminars, the discussions should be made with small to medium groups (as number of participants). We believe that students can express their own interpretation, which can be transformed and becomes objective by confrontation and negotiation across the whole group, but also occurs a number of obstacles, among which the

conditions imposed on the number of participants and training time, the willingness to be involved in activity are the most important. Therefore, the group should be consulted in establishing the goal, objectives, generating contents, the context, interrelation, work tools.

The teachers-students cooperation is an expert-novice cooperation, which activates the "zone of the proximal development" or, as shown by Johnson et al. (1998): the role of teacher assumes a preparation of collaboration through selecting the objectives and training material, thinking how to arrange the room and on the roles' sharing; then the organization of tasks, teamwork, monitoring and feedback, and, finally, evaluation of the quality and effectiveness of the group.

In the cooperation students-students – the communication context becomes a base for own understanding, through negotiation, not competition. Deutsch (1949) identified the positive social interdependence that occurs during collaboration, and other ingredients are: face to face interaction, individual and group responsibility, social competencies and the pro-activity.

Conclusions

Although the interactivity has advantages and disadvantages, by achieving a costs-benefits balance we may conclude that, at methodical level, must be overcome the resistance to change and must be prevented the negative effects (such as high consumption of resources), as by the constructivist instruction is reached a deep, thorough, systematic learning. The positive interdependence and empowering the pupils/students (Johnson and Johnson, 1998) are the main gains.

From the point of view of the teacher, it requires creativity, enthusiasm, effort in organization, classroom management, inter-relational competencies and combining the independent work with the group one meets some needs of social development and also some communication and personal affirmation needs.

The individual study is a key component also in the traditional training, but the fundamental mutation which the constructivist training proposes it refers to order of the approach: the independent learning activity forms to be not only the end of training approach, but also its departure point, followed by the cooperative learning activities in small group and by collaboration with the whole class.

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