

METHODOLOGICAL ASPECTS OF THE USE OF INTERACTIVE METHODS WITHIN THE SEMINAR ACTIVITIES

Gabriela-Paula PETRUȚA¹

¹University of Pitești

Abstract

Within seminar activities, the students clarify, complete and systematize for themselves the knowledges transmitted by the professor during the lecture or acquired by individual study, apply these knowledges, investigate and utilize the information in a more or less creative manner, in new situations. In order to increase the attractiveness and efficiency of the seminar activities, for helping the students to obtain an as good as possible education efficiency, the teacher must use a diversified and flexible methodological register, which should include both traditional and modern methods. Nowadays, it is thought that the active and interactive learning, specific to the modern instruction, is favouring the formation of intellectual and action abilities, which are preserved during the entire life. Among the modern methods, the use of interactive methods within the seminars favors the realization of an interactive learning, stimulates cooperation, collaboration and communication between students, stimulates the productive thinking, critical thinking, divergent thinking and creativity of the students, contributing to the development of all types of intelligence, to the stimulation of all learning styles (visual, auditory, and practical style of learning), to the development of personal responsibility in fulfilling the assumed tasks, tolerance for the opinion of all the participants to the activity, mutual respect, etc. In this paper we analyze the possibility of using the following interactive techniques: Graphic Organizer, Venn Diagram, Clustering (Cluster diagram or clustering diagram), Thinking – Working in groups of four – Communication (Think-Pair-Share) within the seminar activities carried out at the Didactics of biological sciences.

Key words: interactive methods, seminar activities, Didactics of biological sciences

From the historical point of view, the seminar occurred from the necessity to assure the development of profound thinking and solid acquiring of knowledge within the instruction-education process. Apparently, it played a secondary role as compared to lecture, having predominantly a formative role.

Compared with the course activity, within which the teacher communicates new knowledge and has an active role, the seminar activity is preponderantly centered on the activity of student's education. In this case, the teacher only has the role to organize students' activity. Thus, he can organize learning situations which refer to clarification, completing and systematization of knowledge transmitted by the teacher during the course, or acquired by the students through individual study, application of knowledge or using some information in a more or less creative manner, in new situations.

Nowadays, within seminar activities, the teacher tends to promote a diversified and flexible methodological register because of following reasons: a) students learn in different modes; b) learning is a personal action, which is lived by each student in a unique mode depending on their own intellectual, affective and volitional evolution;

c) each learning situation has its specific, being different of others by tasks and nature of content, by psychopedagogical environment and special methods depending on the individual or collective reaction. Thus, "The diversified application of methods facilitates passing from an activity to another, from a cognitive level to another, from concrete to abstract and viceversa, and thus is conditioning a more profound study, allows better possibilities of transfer, generalization and materialization" (Cerghit, I., 2006).

Within seminar activities can be successfully used the interactive methods, because these methods can create the necessary conditions for an interactive or interdependent learning, and, also, can stimulate the formation of intellectual and action abilities. By the use of these methods which challenge the mechanisms of thinking, intelligence, imagination and creativity, the student participates actively to his/her own formation, being subject of learning. He/she "make an effort of personal reflection, interior and abstract", "carry out a mental action of searching, research and recovery of truths, of elaborating new knowledge" (Cerghit, 2006).

The use of any interactive methods involves creating of conditions for an interactive learning,

taking into account the wish of students to cooperate and collaborate, to “mutually share themselves the ideas, opinions, points of view, experiences with opening to others” (Bacoș, 2002). „The interactivity aim is to stimulate the participation in interactions and the finding of some solutions through cooperation [...]” (Oprea, C.L., 2009).

Having in view the advantages of using interactive techniques within the seminar activities, we initiated a research aiming at emphasizing the possibilities to apply some interactive techniques within the seminar activities carried out at the Didactics of biological sciences.

The main objectives of this research were the following:

- Identification of some seminar themes of Didactics of biological sciences, within which to use the interactive techniques Graphic Organizer, Venn Diagram, Clustering (Cluster diagram or clustering diagram), Thinking – Working in groups of four – Communication (Think-Pair-Share);
- Presentation of the application mode of these techniques in order to carry out seminar activities with a team of 30 students, corresponding to a seminar group in the case of University of Pitesti, within the academic year 2009-2010.

MATERIAL AND METHOD

For emphasizing the possibility of the teacher of Didactics of biological sciences to apply some interactive techniques within the seminar activity, we analyzed the actual content of curricula on Didactics of biological sciences and Biology manuals used in gymnasium. Thus, we identified seminar themes within which can be used: Graphic Organizer, Venn Diagram, Clustering and Thinking – Working in groups of four – Communication.

RESULTS AND DISCUSSIONS

The seminar activities in Didactics of biological sciences have an important role in formation of future teacher that will teach Biology, in gymnasium.

By the use of interactive methods within seminar activities is aiming at formation of student competences to adequately use the basic concepts specific to this matter, of designing a Biology lesson plan, and also of communication and dealing competences needed by the future teacher, as member of a teaching staff.

For clarification of the student's knowledge transmitted by the teacher during the course, concerning the didactic methods, and, also, for

know how to use correct them in designing and carrying out the lessons, within seminar activities is necessary to use the Biology manuals.

The students must distinguish one methods from the others, before they illustrate the mode of using of didactic methods, in the case of designing of some lessons from the Biology manuals. Thus, for clarification and systematization of the student's knowledge within the seminar with theme “Practicing some teaching-learning methods used in Biology” the teacher can choose for the use of Clustering technique.

In order to realize the graphical representation of each studied method, the teacher elaborate together with the students a draft of cluster, in which will be mentioned: type of method, the method definition, forms of the method and the use of method within the lesson. Further on, if the team is divided into subgroups formed from 3-4 students, then each subgroup will realize independently a cluster for a certain method, mentioned by the teacher. For example, subgroup 1 will realize a cluster for the laboratory experiment (*fig. 1*), subgroup 2 will realize a cluster for observation, subgroup 3 will realize a cluster for learning by discovery, etc. After the termination of time granted for realizing of clusters, the representative of each subgroup will present the realized cluster, this being thereafter analyzed frontally, with the participation of the other groups. Further on, after the analysis of all clusters, each subgroup will have to study independently a lesson from the manual and to describe the mode of application for the method for which they realized the cluster. Finally, will be discussed frontally the variants of using the methods within the lesson, proposed by the representatives of subgroups. The students will be encouraged to mention also other methods which can be used for transmitting the content of lessons presented by the representatives of subgroups. Thus, it becomes evident the role of teacher in selection of didactic methods which can be used during a lesson.

Another possibility to organize the seminar activity with the above mentioned theme, are rely on using the Comparative Graphic Organizer.

For enlightening of the students' knowledge concerning the specific of a certain didactic method, by applying the Comparative Graphic Organizer, that method can be compared with another didactic method in order to make evident the similarities and dissimilarities between them.

Thus, can be compared: explanation and lecture; laboratory experiment and laboratory practical work (*fig. 2*); learning by discovery and problem-solving; explanation and narration; conversation and brainstorming, etc.

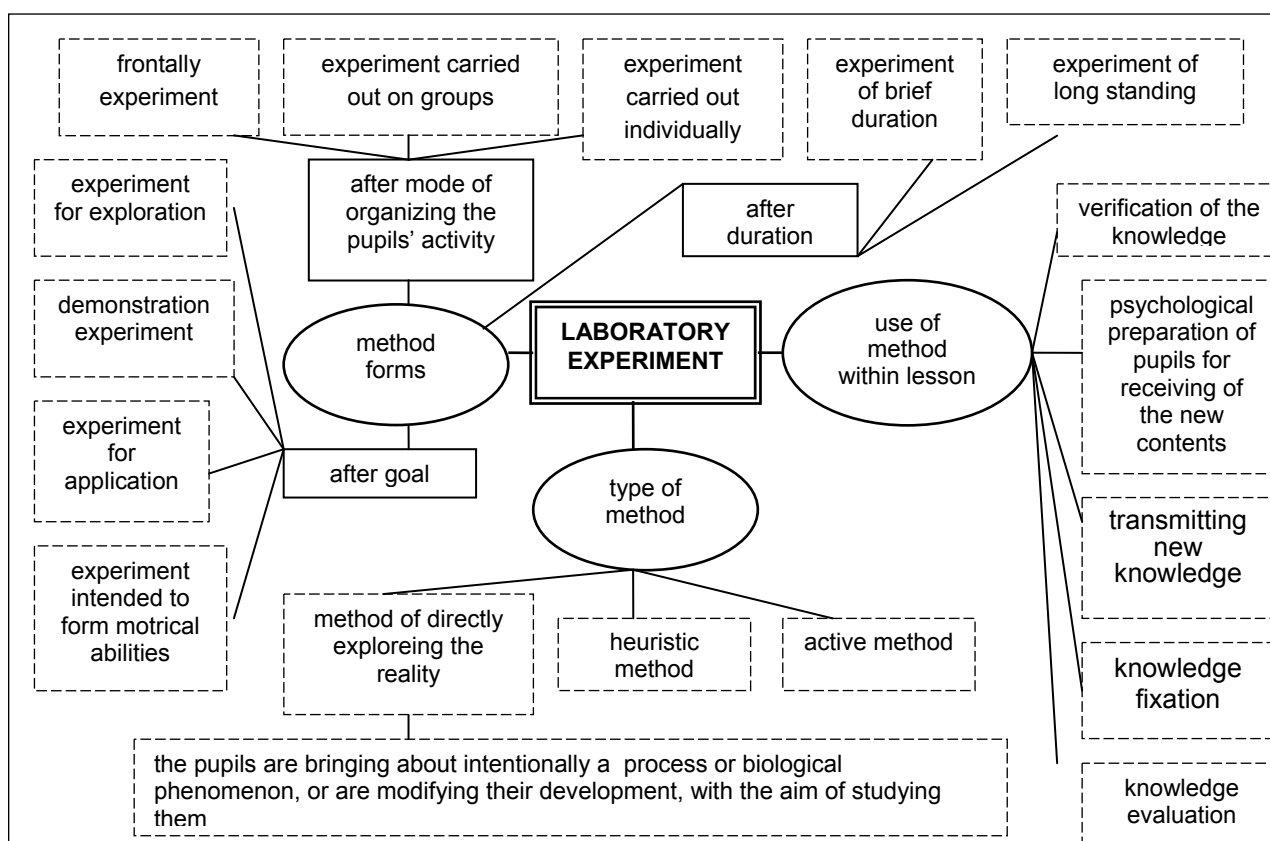


Figure 1 Clustering – laboratory experiment

If the team is divided into subgroups formed from 3-4 students, then the task working can be: a) a different working task - each subgroup will compare different methods; b) a same working task for one group formed from two subgroups – the two subgroups will compare the same methods, different from other methods analysed within other groups. Further on, after the analysis of all Comparative Graphic Organizers, each subgroup will have to study independently two lesson from the manual and to specify what didactic methods can be used for communication new knowledge. For example, the subgroup which has realized the Comparative Graphic Organizer for laboratory experiment and laboratory practical work, will analyze the content of two lessons: „The cell” and „The photosynthesis”, from the Biology manual for the 5th grade. They will specify within which lesson can be used laboratory experiment, or laboratory practical work. The students will be encouraged to mention also other methods which can be correlated with laboratory experiment or laboratory practical work. (Petruța, G.P., 2009). Finally, will be discussed frontally the variants proposed by the representatives of subgroups.

For establishing the similarities and dissimilarities between two concepts, the Venn Diagram can be used. Thus, for establishing the characteristics of active-participative methods, the team of students can be divided in three groups, each group being formed from two subgroups. The

students in the first group will compare the heuristic methods with those based on practical action, the students in the second group will compare heuristic methods with the expositive methods, while the students in the third group will compare methods based on practical action with the expositive methods. Finally, by discussing the similarities between the heuristic methods and those based on practical action, and of dissimilarities between the heuristic methods and expositive methods, respectively between the methods based on practical action and expositive methods, the students will discover the following characteristics of the active-participative methods: there are modern methods which favors an active learning, which involves the pupil's productive-cognitive capacities, thinking and imagination; they include the heuristic methods and the methods based on practical action; by applying these methods the pupils participate actively, by own effort, to the acquisition of knowledge; there are non-structural methods, in the sense that they are characteristic to situations of open learning, which are set up spontaneously.

For up-dating the student's knowledge about the chronological order of the stages specific to a certain method, of the stages specific to various types of lessons, and also of the stages specific to design a lesson plan, the teacher can use the Sequential Graphic Organizer.

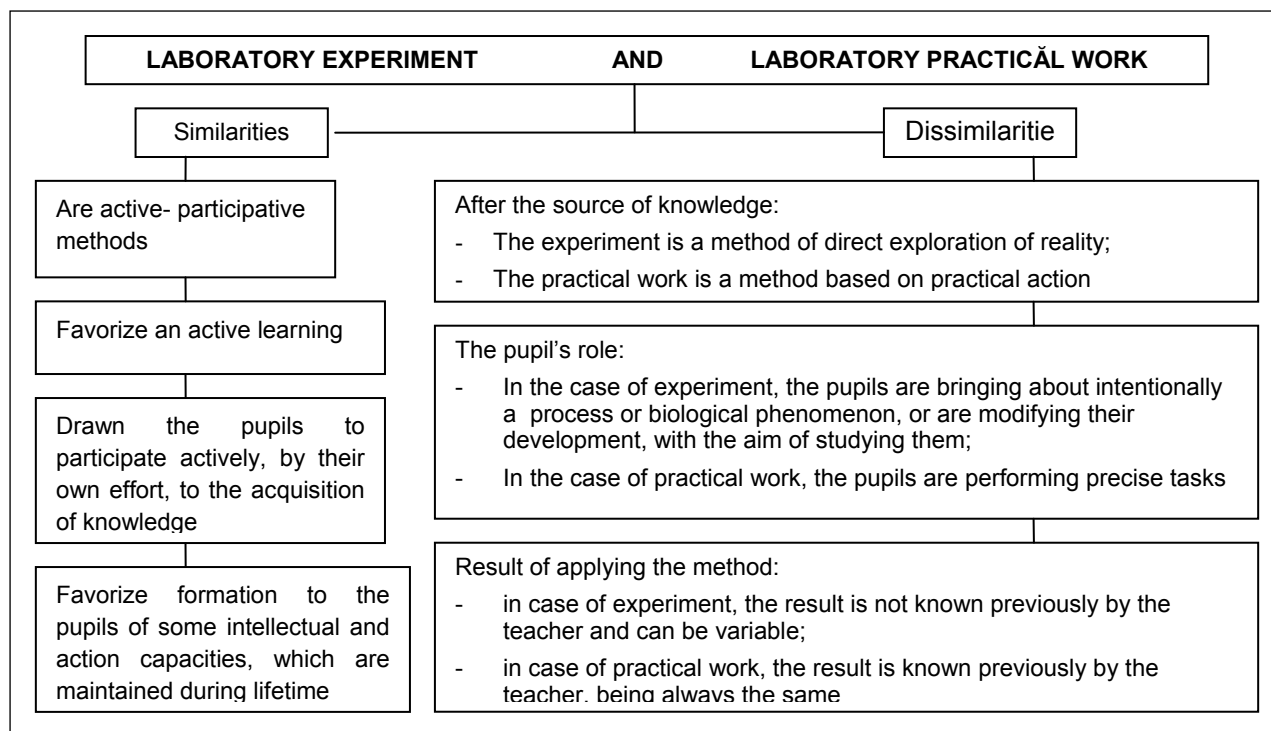


Figure 2 Comparative graphic organizer – laboratory experiment and laboratory practical work

For example, for pointing out the importance of running through the stages specific to various types of lessons in a certain order, the team of students can be divided in five groups, and each group in two subgroups which will have the same working task. Each group will have to represent graphically the structure of a type of lesson: lesson for communication new knowledge, lesson for formation of skills and abilities, recapitulation and systematization lesson, lesson for evaluation of school performances and mixed lesson. After presentation and frontal analysis of all the realized graphic representations, each group will have to realize independently the design for a lesson from manual. In the end, the lesson projects realized by the representatives of groups will be discussed frontally.

The Thinking – Working in groups of four – Communication can be used within the seminar activity for pointing out the fact that the originality and creativity have an important role for each teacher, in designing attractive and interesting lessons. Within the seminar with the theme “Exercises of designing a Biology lesson”, by applying this technique, the students can be asked to state precisely: modalities of carrying out the psychological preparation for going further to the new lesson, for a certain lesson from the manual, or modalities of carrying out fixation and systematization of pupils knowledge, for a certain lesson from the manual, or modalities of carrying out testing the level of understanding of the new knowledge by the pupils.. Initially, each student is thinking 1-2 minutes to the open question addressed by the teacher. Then, the students are

grouped in fours in order to discuss the answer for 5-10 minutes. Subsequently, the answer given by each subgroup will be discussed frontally.

CONCLUSIONS

The interactive techniques can be applied in different moments of some seminar activities Thus: Comparative Graphic Organizer, Sequential Graphic Organizer and Venn Diagram – are used for updating, clarifying, completion and essentialization of students knowledge, for the stimulation of critical thinking and intelligences: visual, logic, verbal; Clustering – is used for fixation and systematization of knowledge, and for updating of knowledge, for stimulation of critical thinking and intelligences: visual, logic, verbal, inter- and intrapersonal; Thinking – Working in groups of four – Communication, is used for application of knowledge in a creative mode, in new situations, for stimulating the productive and divergent thinking, the imagination, creativity and intelligences: verbal, inter- and intrapersonal;

BIBLIOGRAPHY

- Bacoș, M., 2002** - *Instruire interactivă*. Ed. Presa Universitară Clujană. Cluj-Napoca. p. 79.
- Cerghit, I, 2006** - *Metode de învățământ*. Ed. Polirom. București. p.66-89.
- Oprea, C. L., 2009** - *Strategii didactice interactive*. EDP. București. p. 18.
- Petruța, G.P., 2009** - *Prelegeri de didactica științelor biologice*. Ed. Univ. din Pitești. p. 121-130.