RAISING DIDACTIC ACTIVITY EFFICIENCY IN AGRICULTURAL HIGHER EDUCATION THROUGH THE „CLUSTER TECHNIQUE"

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Abstract: The contemporary school must offer the student activities which help actively involve him in the learning formation process. Active involvement supposes for the individual to have personal reflections and prospective interrogations; to ask questions; to formulate problem situations; to listen and understand various points of view; to examine situations without prejudices, preconceptions; to adopt an intellectual posture regarding issued ideas; to develop logic discerning ability; to persuasively argue ideas; to accomplish logic reasoning; to think complexly; to develop self-esteem; to become responsible in acquiring new things. All these may be achieved progressively through the „Cluster technique", a technique in the category of those developing the critical spirit in interactive instruction.

Key words: „Cluster technique"; interactive instruction; critical spirit; agricultural higher education

INTRODUCTION

„The cluster technique" is part of the critic spirit development methods and techniques, representing a variant of the brainstorming method. It is a learning way which facilitates acknowledging relations between assimilated elements. It can be used as a means to summarize what was taught. Through the way it is carried out, it informs the student about knowledge he was not aware he possessed.

The etymology of the term „critic" originates in the Greek word „kritikos", meaning „able to chose, to judge, to discern, decide, separate". The interactive approach of the teaching activity and the practicing of a critic spirit are closely interrelated (FLUERAŞ, 2003).

Critic spirit suggests active, reflexive involvement and ability to discern, representing an indispensable instrument for filtering your knowledge yourself. It is acquired progressively, through:

- personal systemic reflections, self-analysis, interrogations;
- problem issuing;
- transversal/longitudinal use of knowledge;
- comparisons, distinctions, delimitations;
- problematization;
- personal significance creation (BOCOŞ, 2013).

Critical thinking is the continual mental process of analysis of information pretended to be true. It implies systematic exercise, training, interior reflection, conceptualization, comparison, analysis, synthesis. According to Bloom's cognitive ability taxonomy, critical thinking is of a higher level that is a manifestation of conscience.

Critical thinking an be manifested as *analytic*al *thinking*, as well as *synthetic thinking*. Analytical thinking studies the connections, conditionings between parts of a system and systems, which determine configuration, functionality, system level implications. Through all these the whole is separated in its parts. Through synthetic thinking, we rebuild, reorganize the entire system, we study it as a dynamic individuality (KLOOSTER, 2001).

MATERIALS AND METHOD

Procedure

The research has been carried out during the second semester of the university year 2014 - 2015, on a sample of 26 students from the Economic Engineering in Agriculture specialization, and during the first school semester of school year 2015 – 2016, on a sample of 25 students from Engineering and Management in Public Food and Agrotourism, from BUASVM „King Michael I of Romania" from Timişoara, students attending the first and the second year of study at the Faculty of Agricultural Management.

Participants

The target population of this investigation consisted in the 51 students attending the first and the second year of study at the Faculty of Agricultural Management. Their ages ranged from 20 to 35 years old. In the sample there took part 18 male students and 33 female students. The selection of participants was based on willingness to participate in the study.

Objectives of the study

The present study has in view the following objectives:

- the analysis of some essential aspects concerning the students' learning process (learning involves cognitive effort; team work gives students the possibility to share their opinions, ideas, way of work, information; the relations between students involved in collective activity stimulate motivation; techniques of learning use by students);
- to identify the measure in which students are interested in learning new and efficient learning techniques;
- the use „Cluster technique" in the teaching - learning - assessment activity contributes to the development of critical thought, to the durable containing of knowledge, to the collaboration between students.

The application of „Cluster technique"

It implies the following stages:

1. Writing a word or an expression in the middle of the black/whiteboard for the course in question.
2. Noting around the word / expression - nucleus all the students' ideas.
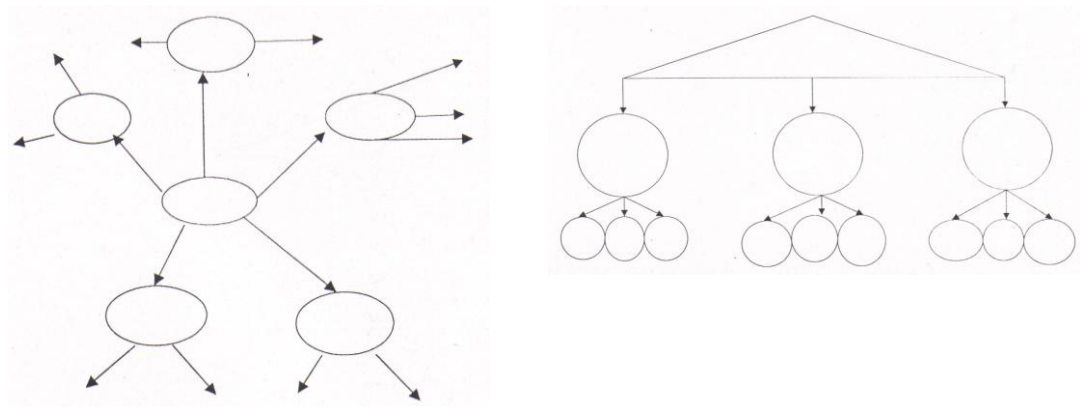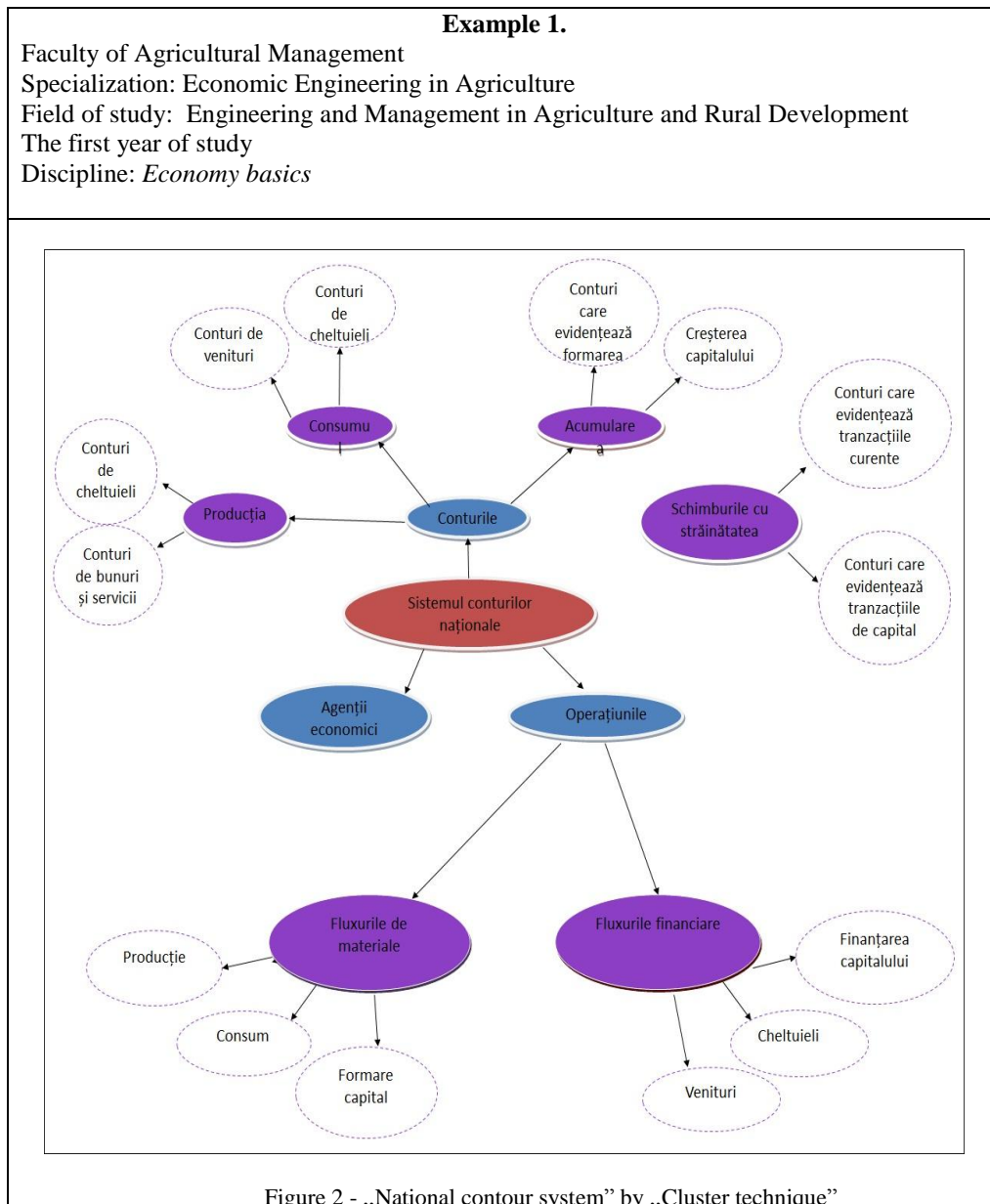3. Correlating these words by tracing lines or arrows (figure 1).

Figure 1 – Didactic activity representation models through „Cluster technique"

RESULTS AND DISCUSSION

When organizing teaching activities, during the former knowledge updating stage, one can apply the Cluster technique. In a frontal way, based on heuristic conversation guided by the teacher and on the answer given by the students, a result of their personal reflection, on the black/whiteboard, and in their notebooks, a schema is achieved regarding the specific course notions presented during the former course. We would like to exemplify with two models made up by students at various disciplines (figure 2, figure 3).

Example 1.

Faculty of Agricultural Management
Specialization: Economic Engineering in Agriculture
Field of study: Engineering and Management in Agriculture and Rural Development
The first year of study
Discipline: *Economy basics*

Figure 2 - ,,National contour system" by ,,Cluster technique"

Example 2.
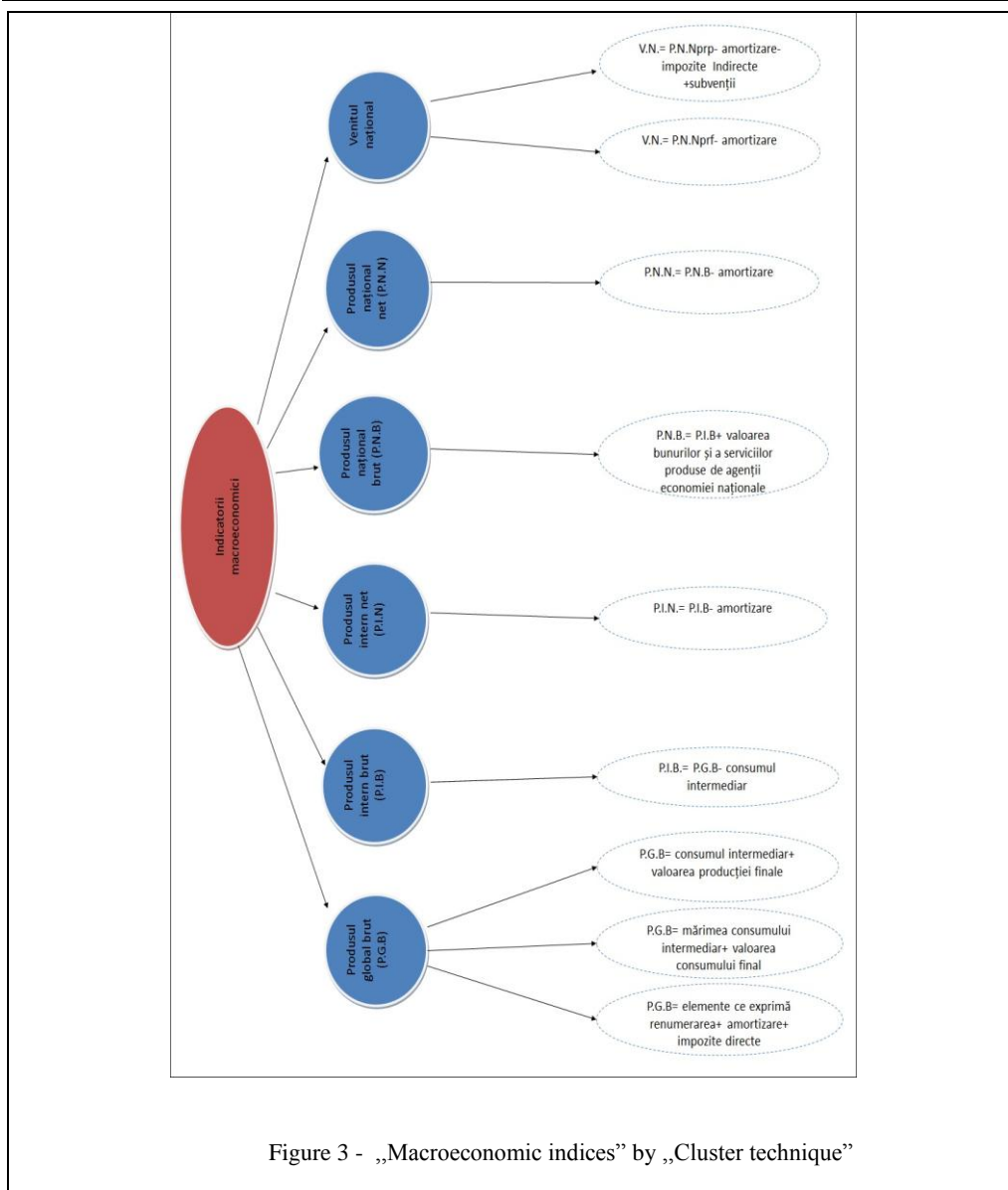
Faculty of Agricultural Management
Specialization: Engineering and Management in Public Food and Agrotourism
Field of study: Engineering and Management in Agriculture and Rural Development
The second year of study
Discipline: *Financial management*

Figure 3 - „Macroeconomic indices" by „Cluster technique"

„The cluster technique" can be thus used during the revision of a chapter, when preparing essays, in structuring a synthesis.

Depending on the course specific, the cluster can comprise words, images, symbols, figures, colours. Making one implies carrying out of cognitive operations: analyses, comparisons, systematizations, classifications, rankings, argumentations. Thus, an overall view of a vast content is offered, highlighting term connections, and grouping information according to logical criteria.

When applied individually, „the Cluster technique" makes students think independently, get involved in the teaching-learning activity. If they work in pairs or groups,

students find out about other people's ideas, the connections established by their colleagues, and have the possibility to complete each other's individual models.

The moment a schema is built on the black/whiteboard, information is required from all students.

In interactive teaching, through ,,the Cluster technique", the learner:
- is actively involved in the teaching and formation process;
- continuously evaluates the relevance of information and correlations;
- adopts an active cognitive attitude towards issued ideas;
- develops his capacity for logic discerning;
- asks questions;
- formulates problem situations;
- is responsible for acquiring new knowledge;
- offers logic and convincing arguments;
- has personal reflections and prospective interrogations;
- listens to and understands various points of view;
- examines situations without prejudices, preconceptions;
- becomes responsible in acquiring the new;
- thinks complex;
- develops confidence in his own strength.

CONCLUSIONS

,,The cluster technique" stimulates divergent thinking in order to identify new ideas and to established connections between ideas.

In interactive teaching, in order to develop critical thinking in students, the teacher:
- supports systematic individual and collective reflection;
- trains them to formulate retrospective and prospective questions;
- challenges them to rational discussions;
- formulates clear, precise questions, so as to guide student proceedings;
- creates wide range learning situations;
- creates possibilities for students to identify alternative solutions for a problem solving, thus developing divergent thinking;
- teaches them to carefully analyse problem data and to make the best decisions to solve it (Bocoş, 2013).

In the category of critic spirit developing methods and techniques, aside from ,,the Cluster technique", there are: ,,the Cube technique"; ,,the Quintet technique"; the "I know – I want to know – I have learned" technique; ,,the Mutual teaching method"; ,,the Mosaic method"; ,,the Lotus technique"; ,,the Gallery tour technique".

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