ACTIVE AND PARTICIPATIVE MODERN METHODS APPLIED IN TEACHING MATHEMATICS IN SECONDARY SCHOOL

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ABSTRACT: Using active methods is the purpose of removing the object depiction students in vocational subjects and turn them into active co-participants in their own development. Active and participative methods focus on knowledge processes and not on knowledge products. The paper present application of brainstorming, algorithmization and questioning, in teaching mathematics in secondary school.

KEY WORDS: methods, teaching math

1. INTRODUCTION

Mathematics is the science concepts of extreme generality, an excellent training school of thought in stages, which arranges things according to their complexity. Develop recurrent thoughts, learn to approach the study of processes with an infinite number of stages and is designed to develop combinatorial thinking, analog, ability to find a common structure in seemingly different phenomena (Mathematics is the way of understanding the universe - Pythagoras).
Active teaching methods activism value given subject. Interactive methods of promoting group interaction between participants and minds of their personalities, leading to a more active learning and obvious results. Using active methods is the purpose of removing the object depiction students in vocational subjects and turn them into active co-participants in their own development. Active and participative methods focus on knowledge processes and not on knowledge products.
Active teaching methods are those methods that may be able to:

- mobilize the energies of student
- succeed his focus make him watch with interest and curiosity lesson
- adherence to win them learned
- succeed to make the student to put into play imagination, creative power, memory

The advantages of using the teacher actively participatory methods of teaching - learning:

- are student-centered and activity
- communication is multidirectional
- emphasize the development of thought, aptitude and skills
- training is formative
- is encourages children's participation and initiative
- promotes partnerships between teachers and students

Is a student-centered approach that involves an active learning style and integration of learning programs based on the student's own pace of learning. The student must be involved and responsible for the progress they make in terms of his own education.
To truly student in the center of educational activity, the teacher meets with more nuanced roles than traditional school. In addressing student-centered classroom success depends on the skills of the teacher to create optimal

learning opportunities for every student. Depending on the context, the teacher acts always, but appropriate and adapted to the group.

Student centered learning methods make lessons interesting, supports students in understanding the content that is able to apply them in real life.

Critical to the students, the teacher should use active participatory creative strategies, which should not be separate from the traditional ones, they scored higher up the spiral modernize teaching strategies.

2.APPLICATION OF BRAINSTORMING IN TEACHING MATHEMATICS IN SECONDARY SCHOOL

Brainstorming is a method consisting in a debate and aims to create ideas, solutions, algorithms and concepts creative and innovative:

- fundamental objective of brainstorming method is to free expression of opinions by freedom from all prejudices, thus stimulating critical thinking, invention and creativity
- the practice of education, is the most common method of stimulating creativity in group activities, relying on the "quantity determines the quality" and "evaluating ideas deferred"
- modern method of teaching mathematics in secondary school, whose basic principles that students' ideas will not be judged, but will be encouraged and that every student takes note of the ideas, debate aimed birth of ideas
- advantages of this method are removing inhibitions and critics, the free expression of the participants in terms of a concept, an idea or a problem

Stages applied in a brainstorming method are:

- ✓ opening session of brainstorming - presents its goal, announced the theme and objectives, discuss techniques and basic rules that will be used
- ✓ adjustment period - lasts 5-10 minutes, and aims to introduce the group in brainstorming atmosphere, participants are encouraged to discuss general ideas in order to move to a higher level
- ✓ phase difference - the generation and issuance of ideas, solutions inedited, it is the creative brainstorming and lasts 25-30 minutes
- ✓ critical evaluation phase and prioritize ideas at the end of Part creative- coordinator clarifies brainstorming ideas were noted and discussed and check if everyone understood the points discussed.
- ✓ phase convergence solutions of choice - the drawing of conclusions brainstorming meeting.An assessment of the brainstorming session and the contribution of each participant to conduct the session being given talents and skills of the group, time and distribution points that have managed to be achieved. To agree upon target those who participated in brainstorming their views and will vote for the best ideas. Group brainstorming subjected to action must determine for themselves what were the ideas that were folded on the concept discussed best.

Case Study: A geometry problem of textbooks for VII, where applicable theorems learned: Pythagorean theorem, torema height theorem catheters, trigonometric functions.

Example: Uf ΔBAC m rectangular triangle and AB = $10\sqrt{3}$ cm and AC = $2\sqrt{6}$ cm.

a) The length of the hypotenuse is .... cm

b) .....cm length of the hypotenuse is the right height

c) Projection catheters hypotenuse AB is ... cm

d) Perimertul triangle ABC is .....cm
e) Area of the triangle ABC is ...square centimeters

- question is written on the blackboard
- students propose ideas that lead to solving the problem (eg building figure, then apply the Pythagorean theorem theorem catheters)

"Venn diagram" is composed of two secant circles large and can be used to show the similarities and differences between two ideas or concepts (fig. 1).

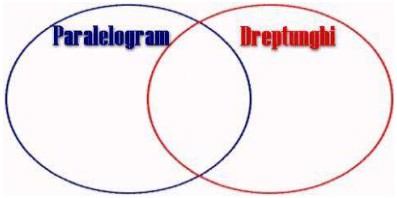

Fig. 1. Venn diagram

3.APPLICATION OF ALGORITHMIZATION IN TEACHING MATHEMATICS IN SECONDARY SCHOOL

Education is a teaching method which employs a chain of exercises directed, integrated action at the level of teaching standardized scheme, which aims task training approach limits prescribed professor in unequivocal sense.

- success depends on the ability of algorithms pedagogical method chosen to intervene as operational models that streamlines the learning experience through the application of rules, formulas or action codes accurate and rigorous teaching
- specifics algorithms resulting from didactic pedagogical context in which the automated action
- is a method that relies on algorithms in the act of teaching, with the aim of familiarizing students with a series of procedural schemes (action models), logic or calculation that will help solve a wide range of training tasks
- involves the application of algorithms and perform a suite of operations, integrated didactic action schemes which follow a task training
- algorithm contains a set of indications, requirements, rules and judgments that lead to solving a task of teaching and learning
- solving problems and exercises they can be used in an algorithmic manner, provided annoyed not to be considered as algorithmic not be matched by type heuristic learning
- will develop an algorithm or a sequence of operations unequivocal, starting from a heuristic search process solutions, algorithmic and heuristic approaches are not finding in opposition, but in a dynamic relationship and continuity

Mathematics, uses an algorithm in two directions:

- ✓ solve certain types of exercises and theoretical issues pertaining
- ✓ to conduct practical activities

Didactic classification algorithms can be realized by reference to the classic criteria proposed by russian psychologist Landa targeting content operţionale objectives proposed in this respect can be determined two categories of algorithms didactics:

- ✓ identification algorithms - advancing a list of questions for referral ranked special class of problem, to develop a certain classifications value synthesis
- ✓ solving algorithms – advancing a sequence of operations required for the accurate assessment of a situation of training in order to develop an effective decision

4.APPLICATION OF PROBLEM IN TEACHING MATHEMATICS IN SECONDARY SCHOOL

Problem is a method consists in placing the student in difficulty, deliberately, by its own effort to overcome that, the student learns something new.

- how are the student's mind to create a positive state of conflict, driven by the necessity of solving the problem
- professor pursue the business of teaching - learning - by launching evaluation and problem solving situations; there are two main elements:
  - ✓ briefed that it puts the student in the subject
  - ✓ question that causes difficulty solving, resulting reflective capacity

Methodical steps of problem are:

- ✓ perception and problem solving appearance of the first signs Enlarge
- ✓ depth study and understanding, followed by restructuring of problem data by independent activity
- ✓ search for solutions to the problem raised

Necessity of using this method is:

- ✓ formative aspect that promotes education through effective and sustained participation by developing student interest and knowledge
- ✓ increases durability and applicability in practice student information
- ✓ causes a greater possibility of transfer of knowledge acquired

This method involves the following conditions:

- students to be active in class
- students work individually or in small groups during class
- most students to be good problem solvers of
- the time of placing the issue in the lesson to be well chosen
- number of students in the class are not too high
- curriculum is not overloaded
- students are used to thinking that reward the background note, the main satisfaction is understanding, discovery, creation.

5. CONCLUSION

- Mathematics is the science concepts of extreme generality, an excellent training school of thought in stages, which arranges things according to their complexity.
- Using active methods is the purpose of removing the object depiction students in vocational subjects and turn them into active co-participants in their own development.
- Active and participative methods focus on knowledge processes and not on knowledge products.
- Student centered learning methods make lessons interesting, supports students in understanding the content that is able to apply them in real life.
- Brainstorming is a method consisting in a debate and aims to create ideas, solutions, algorithms and concepts creative and innovative.
- Mathematics, uses an algorithm in two directions: solve certain types of exercises and theoretical issues pertaining and to conduct practical activities.
- Problem is a method consists in placing the student in difficulty, deliberately, by its own effort to overcome that, the student learns something new.

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