Research Article

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Educational Activity and Development of Learning at Mathematics Classrooms

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Abstract : *Educational activities involve students in real situations. Those situations help them to understand importance of Mathematics. In educational activity, students use many senses compared with the traditional method. That lets learning outcomes more effective and continually usable in their daily life. Activity should be planed very well to help students learn and finally archive their task. That will increase their confidence about their ability and encourage them to try their best at learning Mathematics.*

Key Words : Educational activity, Teaching, Learning, Mathematics, classroom

1. Definitions

Education

Noun

1. The process of acquiring knowledge and understanding
2. Knowledge and understanding acquired through study and training
3. The process of teaching, esp. at a school, college, or university
4. The theory of teaching and learning

Teaching

As a noun

1. The act, practice, occupation, or profession of a teacher.
2. a. Something taught.
   b. A precept or doctrine. Often used in the plural

As an adjective

1. of, involving, or used for teaching: teaching materials; teaching methods.
2. Working as a teacher or in teaching: teaching assistants.

Activity

1. The state of being active.
2. Energetic action or movement; liveliness.
3. a. A specified pursuit in which a person partakes.
   b. An educational process or procedure intended to stimulate learning through actual experience.
4. The intensity of a radioactive source.
5. The ability to take part in a chemical reaction.
6. A physiological process: respiratory activity.

Educational activity — the activities of educating or instructing; activities that impart knowledge or skill

Background

Many students at many countries in the world don't like mathematics and feel that it is a boring subject. That is related to many reasons. Some of them related to parent's bad experience in studying mathematics, some of them related to the way of forming Mathematics curriculum or text books, some of them related to the natural of the Mathematics subject itself, and some related to the teaching method and classroom environment. In this paper, we deal with development of teaching method and classroom environment.

2. Active Learning

Consequently, many faculties assert that all learning is inherently active and that students are therefore actively involved while listening to formal presentations in the classroom. (Chickering and Gamson 1987), however,

suggests that students must do more than just listen: They must read, write, discuss, or be engaged in solving problems. Most important is to be actively involved. Strategies promoting active learning are defined as instructional activities involving students in doing things and thinking about what they are doing.

Use of active learning techniques in the classroom is vital because of their powerful impact upon students' learning. For example, several studies have shown that students prefer strategies promoting active learning to traditional lectures. Other research studies evaluating students' achievement have demonstrated that many strategies promoting active learning are comparable to lectures in promoting the mastery of content but superior to lectures in promoting the development of students' skills in thinking and writing.

3. Principles of learning

(1) Learning is not necessarily an outcome of teaching

Parsimony is essential in setting out educational goals: Schools should pick the most important concepts and skills to emphasize so that they can concentrate on the quality of understanding rather than on the quantity of information presented.

(2) What students learn is influenced by their existing ideas

When students come to classroom, they already have their own ideas and experiences. New ideas should be adapted with old ideas to be accepted with them. Otherwise their old ideas will win even if they aren't correct.

(3) Progression in learning is usually from the concrete to the abstract

Children can learn easily about thing that they can touch and accusable to their senses. With experience, they grow in their ability to understand abstract concepts.

(4) People learn to do well only what they practice doing

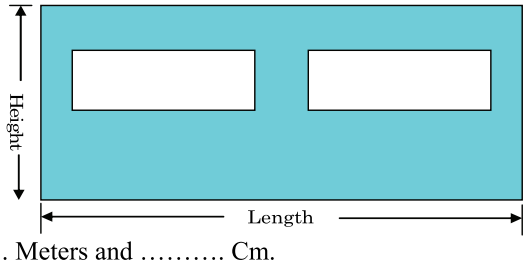
When students are involved in a real learning situation, they can acquire a lot of experiences. Through involving them more and more in such situations, they can learn to think critically, analyze information, communicate scientific ideas, make logical arguments, work as part of a team, applying problem solving techniques and acquire other desirable skills.

(5) Effective learning by students requires feedback

Students learning go to the best side, when they have a feedback about what they learned. That feedback shouldn't stop at giving right answers of they mistaken or summarizing ideas that they learned. But it would be analytical, suggestive, and come at a time when students are interested in it. Then students should have a chance to reflect on the feedback they receive, to make adjustments and to try again.

Q1:
Complete
- 1 meter = ……. Cm.
- Half a meter = ……..Cm.
- Quarter a meter = …….Cm.
- 3 meters and half = ... + ...= .....Cm.
- 2 meters and 34 Cm. = ...+ .....= .....Cm.
- 426 cm = ……. meter and…... Cm.
- …… is used for measuring distances.

Q2:
Find the length of your class?



Length of the class = ……. Meters and ……. Cm.
= ……. Cm.

Fig.1. A model of an activity worksheet

(6) Expectations affect performance

Students' confidence about their abilities affects their learning results. Students with positive confidence are encourages to study hard, and when the lack of confidence comes out, they perform poorly in their study. That positive confidence rises up through a series of success experiences. That leads us to, when a teacher gives a task to be achieved, he would guide his student till he succeeds.

(7) Effective teaching

Effective teaching should be thought of as helping students learn, and every student encounter should be thought of as a student's opportunity for learning.

4. Some examples of activities at Mathematics classrooms

(1) Example 1

Title: Length measure

Purpose: To train students about how to find out length of something practically.

Required materials: 100 cm. rulers, 50 cm. rulers, a measure tap, white papers, colored chalk, pencils, and worksheets.

Steps:

1- A teacher introduces some information about units of measuring length and the relation between them and discusses it with his students. He should teach them how to use a ruler or a measure as well.
2- Students should be divided into small groups of 4-6 students.
3- A group takes a measure, worksheet, a pencil, a color chalk, and a white paper.
4- Two students use the measure to find length of their class wall, a third student put s marks where the measure end every time, a fourth student records their results on the white paper.
5- When they finished measuring, they start calculation to find the final result in meters and centimeters.
6- They discuss and analyze their results with each other and with their teacher.
7- They get 5 minutes reflection about the whole activity and what they notice, and then how to develop it next time.
8- They replace each other role in their group and start to find length of any other place inside school.

Lessons can be obtained from such activity:

- Involving students in a real educational activity combines between what student study at schools and their daily life. That lets mathematical concepts more reliable in their minds. Then positive attitude towards mathematics can be come out.
- Training children about how to behave as a member of a team and how to respect other members in his classroom and outside school as he understand his need to other members to achieve a task in or outside school.
- Combine between intellectual and practical work.
- Through that activity, student is active and not only listening to his teacher. He can practice, listen, measure, write, calculate, record result, discuss results, express his opinion to others, think and suggest solutions to develop his work, be familiar with problem solving strategies.
- Two directions teaching can be achieved.

(2) Example 2

Title: Make a puzzle

Purpose: To learn through play

Use of more senses lets learning more effective and exciting.

Required materials: match boxes, scissors, white paper, glue, color box, a ruler.

Steps:

1- Students should be divided into pairs.
2- Put 8 match boxes beside each other.
3- Attach a white paper to one side of those boxes.
4- Use the color box to draw the picture or shape you like on that paper.
5- Put marks at the end of each match box on the colored paper.
6- Join those marks vertically and horizontally.
7- Use scissors to cut its parts according to those lines to get the puzzle parts.
8- Measure length and width of that puzzle and design a box without lid to put that puzzle in.

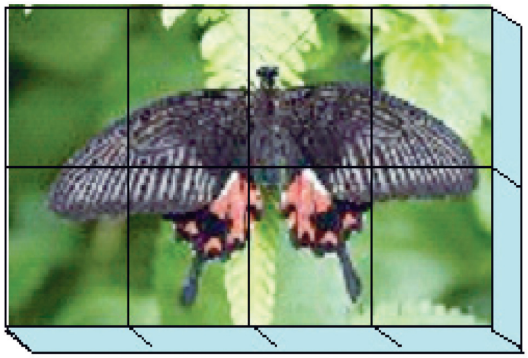


Fig.2. Final shape of the formed puzzle

9- Using those parts discuss with your friend and your teacher how to express different fractions. How to do different operations on fractions such as addition, subtraction, equalization

Lessons can be obtained from such activity

- It can help students to understand the real meaning of simple fractions.
- It combines between theory and practical meaning of addition, subtraction, and equalization of fractions.
- Students learn while playing.
- Students are very active while learning, where they measure, fix, paste, cut, mark, and rearrange. They use different senses.

5. Conclusions

- The more senses student uses the more effective learning he gets.
- Educational activity involves students in a real situation. That situation helps him to understand importance of mathematics. That feeling guides him to do his best in learning mathematics.
- Teaching should aim to guide children to learn how to learn by themselves not to give them information directly.
- Using activity in learning Mathematics lets it more applicable in the daily life.

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要　約

生徒は活動を通して，現実の場面を学ぶことができ，数学の重要さを理解できる．活動は従来の方法と比べて，多彩な感覚を活用し，日頃の生活において役立つことにつながる．そして活動を通して身につけた能力は，それが使える状態で保持し，活用されることで，数学の学習も確信を持って進められ，促進されることになる．

（訳：教員教育国際協力センター）