Abstract

This research attempts to explore how to effectively implement activity approach to teaching with the support of multimedia through an action research. Firstly, it aims at improving the Mathematical concepts and problem-solving strategies of Mathematical gifted students. Secondly, it examines the factors that are critical for effective conduction of Activity Approach in Mathematics teaching.

This study is conducted in one of the Macao secondary school where researcher works. The examinees are 26 Mathematics gifted students in Form 2. According to context of their textbooks, the teaching process is based on Actívity Approach with the support of multimedia teaching. Some varied kinds of activities, including visual activity, exploring activity, daily-life activity, online-appreciation activity, are completed within 4 lessons separately. Moreover, in order to obtain more precise information and to work up with it, researcher utilizes questionnaires, video-recording, interviews and the process-opened tasks in Mathematics.

Through around 4 months action research, researcher takes the live video-recording and works at analyzing the obtained data from interviews. The results are the followings:

i. Examinees' concepts towards Mathematics have actively and positively altered. It is distinctly showed in their impressions and the entire feelings in Mathematics. It is also showed in which their concerns to interesting and live-worthy in Mathematics, their motivations for learning and doing Mathematical training tasks are positively altered.

ii. Utilization of different activities in teaching can benefit for increasing students' problem-solving strategies. Many examinees are able to tell the answers of the process-open tasks through observation, manipulation, guessing and reasoning. It manifests that examinees try to integrate their attempts and exploring concepts into the problem-solving process.

iii. The effectiveness of Activity Approach with the support of multimedia includes: activity makes abstract ideas more visible; it creates an effective learning interaction atmosphere; multimedia aids the effective implementing of activity Approach to teaching; teaching by using Internet create an open-ended learning environment.

In accordance with the results above, the following suggestions were made:

1. Activity should be attractive and reasonable;

2. The differences between students should be concerned when the activity is designed;
3. The design of activity should be in accord with the teaching schedule.
4. The multimedia should be used for enhancing students understanding but not only for demonstration;
5. The school administrative support is important;
6. Activity should not be only for fun, without any objectives.