

Summary of the Study

Introduction

The researcher noticed, as a math teacher, that many prep stage pupils can not think of solutions to math problems that require some flexibility. This is simply because they have never studied such problems before. When the textbook offers more than one solution for a problem, the pupils stop at one solution and disregard the others.

Review of related literature and research studies indicated lower levels of creative ability in math for pupils of Egyptian schools. This supports the researcher's observation in the classroom. The teaching strategy is very important in developing pupils' creative abilities. Hence, came the researchers interest in the instructional strategy to develop the pupils' creative abilities in math at the prep stage.

The Problem of the study

The present study attempts to find answers to the following questions:

1. What are the basis of a suggested strategy for developing creativity in math for pupils at the prep stage?
2. What are the characteristics/ features of the suggested strategy?
3. How far is the suggested strategy effective in math achievement for pupils at the prep stage?
4. How far is the suggested strategy effective in developing creativity in math for pupils at the prep stage?
5. What is the relationship between achievement and creativity in math for pupils at the prep stage?

Limitations of the study

This study is confined to:

1. A sample of second grade prep pupils in Kaluobia Governorate, and
2. The content of two units in Geometry textbook/course for second grade prep stage.

Importance of the Study

1. Providing an instructional strategy for developing creativity in math for prep stage pupils.
2. Offering enriching content activities for curriculum planners.

Procedures of the study

The present study is undertaken in the following steps:

1. Determining the basis of the suggested strategy through:
 - A. Review of previous studies and research related to creativity in teaching math,
 - B. Theoretical study of general creativity and creativity in math as a specific ability,
 - C. Theoretical study of methods of developing general creativity and creativity in math.
2. Designing the suggested strategy in the light of the above/aforementioned steps.
3. Presenting the suggested strategy to a jury of specialists in teaching math. Then, the necessary revisions/changes were done.
4. Preparing an instructional plan for two units in geometry course of second grade prep stage in accordance with the suggested strategy.
5. Formulating the tools of the study:
 - A. Creativity test in school math
 - B. Achievement test in Geometry for second grade prep stage.
6. Selecting the study sample from second grade pupils and dividing them into two groups.
7. Experimenting the suggested strategy with the experimental group while teaching the control group using the traditional method.
8. Administering the study tools after experimentation.
9. Recording results, data analysis, recommendations and suggestions for further research.

Results of the Study

1. There are significant statistical differences, at 0.01 level, between the mean scores of the experimental group pupils in the pre-and-post test of creativity in math, both in the overall ability and in the partial abilities—going beyond traditional thinking in math, forming and solving math problems, providing mathematical relations, generalizing from specific mathematical situations, and solving original/ non-traditional math problems.
2. There are significant statistical differences, at 0.01 level, between the mean scores of the control group pupils in the pre-and-post test of creativity in math in the partial abilities in favor of the pre-test.
3. There are significant statistical differences, at 0.01 level, between the mean scores of the experimental and control group pupils in the post-test of creativity in math, both in the overall ability and the partial abilities, in favor of the experimentals.
4. There are significant statistical differences, at 0.01 level, between the mean scores of the experimental and control group pupils in math achievement in favor of the experimentals.
5. There is a significant statistical positive correlation, at 0.01 level, between the raw scores of the experimental group pupils in the achievement test and in creativity test in math.
6. There is a low positive correlation between the raw scores of the control group pupils in the achievement test and their scores in creativity test in math.

It is, therefore, concluded that using the suggested strategy was highly effective in developing the ability to solve non-traditional math problems, the ability to produce mathematical relations, the ability to form and solve math problems from given information, the ability to go beyond typical thinking in math, and the ability to generalize in special math situations, consecutively.