

Study Summary

1- The Aim and Importance of the study:

The study aims at investigating the role of concrete manipulatives materiales, in comparison to the traditional adopted methods of teaching, in enhancing the achievement levels of visually handicapped pupils in mathematics. The study will focus exclusively on the unit of algebraic terms and expressions studied by the first preparatory pupils in Al-Noor Schools in 2002-2003.

The importance of the current study lies in:

1. The study helps the teachers and the program designers of the visually handicapped pupils to acknowledge the ways concrete manipulatives materiales are used in some activities - that make use of the rest of the senses - to teach and improve some mathematical concepts and skills.
2. Designing some activities that are based on using concrete manipulatives materiales, and that can be used with the visually handicapped pupils.
3. Getting the teachers of the visually handicapped to consider the importance of using concrete manipulatives materiales in teaching mathematics to their pupils.
4. Presenting a humble contribution in answering the increasing need for large number of studies in the field of mathematics for the visually handicapped. The suggested unit is considered a step towards designing and using precisely measured programs for such students.

2- The Problem and the Study Questions:

Due to the unsuitability of the books to be studied by the visually handicapped to the nature of their visual handicap; due to what the results of the questionnaire have unveiled concerning the lack of a certain framework for teaching

mathematics for the visually handicapped; and regarding what the results and recommendations of the previous studies and projects in the field of teaching mathematics in general and teaching it to the visually handicapped in particular have shown concerning the importance of teaching mathematics for the visually handicapped in a manipulatives method that depends on the rest of the senses more than anything else, the problem of the study has been set in the following question:

What is the role of the concrete manipulatives materials in enhancing the achievement level of the visually handicapped pupils in mathematics?

This question branches into the following:

1. How could we reshape the unit of algebraic terms and expressions, using concrete manipulatives materials, in order to be taught to the visually handicapped pupils?
2. What is the effectiveness of the concrete manipulatives materials in enhancing the achievement level of the visually handicapped pupils of the first preparatory concerning the unit of algebraic terms and expressions?

3- The Study Hypotheses:

In the light of the previous studies and projects, the hypotheses of the current research have been set as follows:

1. There is a significant statistical difference at the level of the significant (0.05) between the mean rank of marks of the two groups of the study i.e. the experimental and the controlling groups, for the experimental group. This happens in the post achievement test done on the unit of algebraic terms and expressions for the first preparatory students.
2. Concrete manipulatives materials are effective in enhancing the achievement level of the visually handicapped pupils of the first

preparatory in the unit of algebraic terms and expressions, as Blacke`s ratio exceeds whole one.

4- The Study Limitations:

The current study works within the framework of the following limitation.

1. Content Sample: the unit of algebraic terms and expressions in the first preparatory book of mathematics.
2. Subject: a sample of the the visually handicapped pupils of the first preparatory in Al-Noor Schools in Dakahliya, Damietta and Cairo.

5- The Study Variables:

The variables dealt with in this study are divided as follows:

1. Independent Variable: this is the variable whose effect is to be measured in this research. This variable is represented in the used method of teaching, and it has two levels: the first level depends on using concrete manipulative materials, and it is used with the pupils of the experimental group. The second level is the traditional one, which is used with the pupils of the controlling group.
2. Dependent Variable: this is the variable whose effect on the independent variable is to be measured before and after the experimental manipulation. This variable is represented in the educational achievement in mathematics as measured by the achievement test prepared by the researcher.

6- The Study Tools:

The researcher has prepared an achievement test on the unit of algebraic terms and expressions, the unit that has been mentioned in the study limitation.

7- The study Procedures:

To answer the study questions and to investigate the validity of its hypotheses, the researcher has gone through the following procedures:

1. Developing the concrete and manipulative materials during teaching the unit of algebraic terms and expression studied by the first preparatory students in Al-Noor Schools to suit the nature of the visual handicap.
2. Reshaping the content of the unit of algebraic terms and expressions studied by the previously mentioned students in a way that suits the nature of the visual handicap. This will be done through making use of the theoretical framework of the research and of the previous studies and projects.
3. Preparing a teacher`s guide for the unit concerned including some signs and principles that would help the teacher in teaching the unit to the visually handicapped students.
4. Preparing an achievement test on the unit of algebraic terms and expressions.
5. Subjecting the unit, the teacher`s guide and the achievement test to the opinion of the experts and the educationalists to judge their suitability to the nature of the visual handicap, and making the suitable modifications in the light of their suggestions.
6. Reprinting the unit and the achievement test Braille to be easily applied on the students.
7. Making a preliminary experiment for the achievement test that aims at analyzing its items, measuring its factor of constancy and determining the time of the test.
8. Making a pre achievement test on both groups i.e. the experimental and the controlling groups.

9. Teaching the unit of algebraic terms and expressions using concrete manipulative materials with the students of the experimental group.
10. Making a post achievement test on both groups i.e. the experimental and controlling groups.
11. Collecting data, statistically manipulating and explaining it, and answering the questions of the study.
12. Presenting the suitable suggestions and recommendations to make full use of the study results.

8- The study Results:

The study has resulted in the following results:

1. There is a significant statistical difference at the level of 0.05 between the mean ranks of marks of the two groups of the study i.e. the experimental and the controlling groups, for the experimental group. This appears in the post achievement test on the unit of the algebraic terms and expressions studied by the first preparatory students.
2. The effectiveness of the modified concrete manipulative materials in enhancing the achievement level of the first preparatory visually handicapped students concerning the unit of algebraic terms and expressions.