

ABSTRACT

- THE STUDY PROBLEM:

The problem of the present study was the low level of preparatory stage students' critical thinking skills which, in turn, needed the suggested strategy in mathematics for developing some critical thinking skills among the preparatory stage students. To achieve this objective, the study tried to answer the following five questions:

- 1- What are the critical thinking skills suitable to the preparatory stage students?
- 2- To what extent do the preparatory stage students master these skills?
- 3- What is the suggested strategy to develop some of the critical thinking skills among those students?
- 4- What is the effectiveness of this strategy in developing some of the critical thinking skills among those students?
- 5- What is the effectiveness of this strategy for developing the achievement in mathematics among those students?

Summary of Study

- THE LIMITATIONS OF THE STUDY:

The present study has limited itself to the following:

- 1) A sample of the students in the second year of the preparatory stage at Qalubiya Governorate, because there has been a lack in such studies dealing with the development of critical thinking at this age.
- 2) The unit of the "Relative Numbers" in Algebra and the unit of "Matching" in geometry in the first semester of the school year 2002-2003.
- 3) The development of the following skills of critical thinking: (cognition of assumptions – interpretation – evaluation of discussions - deduction - induction).

- THE PROCEDURES OF THE STUDY:

To answer the questions of the present study, the following procedures were carried out:

- 1- Preparing a list of the critical thinking suitable for the preparatory stage students through:
 - Theoretical study on thinking and its types.
 - Theoretical study on the critical thinking and its skills.
 - Theoretical study on the approaches of developing the critical thinking.

Summary of Study

- Theoretical study on the characteristics of the students at the preparatory stage.
 - Building the critical thinking skills list.
 - Judging the list by a jury of experts in teaching mathematics.
- 2- Determining the extent to which the preparatory stage students master the critical thinking skills:
- Developing the critical thinking skills test in the light of the list.
 - Applying the test on the sample.
 - Tabulating the findings.
- 3- Designing a suggested strategy in teaching mathematics to develop some critical thinking skills among the preparatory stage students through:
- Reviewing the literature dealt with the design of teaching strategies.
 - Writing a theoretical background on the nature of mathematics and its role in the development of thinking.
 - Presenting the suggested strategy to a jury of experts to judge its validity and to propose necessary modifications.

Summary of Study

- 4- Measuring the effectiveness of the suggested strategy through:
 - Developing an achievement test in the two selected units (by the researcher of the present study).
 - Choosing a sample of the second year students at the preparatory stage and dividing them into two equal groups concerning age, intelligence, and the standard of critical thinking. One group was the experimental and the second was the control.
 - Administering the pre-test of the critical thinking to the sample of the study.
 - Implementing the suggested strategy to the experimental group while the control group students have been taught in the traditional method.
 - Applying the critical thinking test and the achievement test on the two selected units on the sample after the experimental treatment.
- 5- Analyzing and interpreting the results.
- 6- Suggesting the study recommendations.

*Summary of Study*_____

- THE FINDINGS OF THE STUDY:

The most important findings of the present study are summarized in the following section:

- 1- There were statistically significant differences at the level 0.01 between the scores of the experimental group and those of the control group on the assumptions cognition test in favour of the former. The first hypothesis was accepted.
- 2- There were statistically significant differences at the level 0.01 between the scores of the experimental group and those of the control group on the interpretation test in favour of the former. The second hypothesis was verified.
- 3- There were statistically significant differences at the level 0.01 between the scores of the experimental group and those of the control group on the discussions evaluation test in favour of the former. The third hypothesis was accepted.
- 4- There were statistically significant differences at the level 0.01 between the scores of the experimental group and those of the control group on the induction test in favour of the former. The fourth hypothesis was accepted.

Summary of Study

- 5- There were statistically significant differences at the level 0.01 between the scores of the experimental group and those of the control group on the deduction test in favour of the former. The fifth hypothesis was accepted.
- 6- There were statistically significant differences at the level 0.01 between the scores of the experimental group and those of the control group on the critical thinking test as a whole in favour of the former. The sixth hypothesis was accepted.
- 7- There were statistically significant differences at the level 0.01 between the scores of the experimental group on the mathematical thinking test in the pre-testing and the post-testing in favour of the latter. Thus, the seventh hypothesis was accepted.
- 8- There were statistically significant differences at the level 0.01 between the scores of the experimental group and those of the control group on the achievement test in favour of the former. The eighth hypothesis was accepted.
