

## Summary

### **The Effect of Utilizing Storytelling Strategy in Teaching Mathematics on Grade Four Students' Achievement and Motivation towards Learning Mathematics.**

This study aimed to investigate the effect of using storytelling approach in teaching mathematics on fourth grade students' achievement and motivation towards learning mathematics, through answering the following two main questions:

- 1- What is the effect of using storytelling strategy in teaching mathematics on fourth grade students' achievement in mathematics?
- 2- What is the effect of using storytelling strategy in teaching mathematics on fourth grade students' motivation to learn mathematics?

To achieve the goals of the study, three instruments were developed; the first was a mathematics test that was developed to measure students' achievement on concepts of fractions from the fractions unit of the fourth grade mathematics text book; the second was a questionnaire that measures students' motivation towards learning mathematics, which was designed in light of a careful review of the literature conducted around the topic; the third instrument was a redesigning of the fractions unit from the Palestinian Fourth Grade mathematics book. The new unit was redesigned in a storytelling format. Each story in the unit included a concept on fractions that corresponds to one lesson from the fractions unit in the book.

The reliability and validity of all three instruments were confirmed by specialized reviewers, and adjustments were made in light of the reviewers' comments and the pilot results. The reliability of the motivation questionnaire was verified using Cronbach Alpha which gave a value of 0.79. The reliability for the math test was verified using the test-retest application of the examination in three weeks time, Pearson correlation reliability coefficient was 0.74

In conducting the study, a quasi-experimental design approach was followed. Two similar fourth grade classes were selected from one Ramallah School. Control and

experimental groups were appointed in a simple random format, the study sample were 68 students, 34 in each group. In order to ensure equality of the two groups, prior motivation questionnaire and achievement mathematics tests were applied. Data were collected and analyzed using t-test. The results indicated that the two groups were equivalent.

Then the control group was taught the fractions unit in a traditional way, while the experimental group studied the same unit with the storytelling strategy that was developed by the researcher. After completion of the fractions unit, both the motivation questionnaire and the mathematics test were administered to both groups. Averages and standard deviations were calculated according to students' responses on each instrument. Data were analyzed using independent sample t-test to examine the hypotheses of the study.

Results revealed a statistically significant difference on students' motivation towards learning mathematics in favor of students who learned by the storytelling strategy. Results also showed a statistically significant difference on students' achievement on fractions unit concepts in favor of students who learned using the storytelling strategy. The research findings also found that using storytelling strategy in teaching mathematics increased students' ability to solve word problems, and higher order questions. Results of this study were in agreement with the findings of previous local and international studies.

Based on these findings, this study recommends the use of storytelling by teachers; and by Palestinian education policy makers, especially those involved in curriculum development and teacher training programs to take this issue into account, and to include the strategy of using story while designing and preparing curricula and training programs. Other recommendations were offered to future researchers to carry out more studies on the use of storytelling in teaching, and to expand the use of storytelling in topics other than fractions, and at other grade levels.