The Impact of the Use of the Strategy (the five steps) Modified (SQRRE) in the Achievement of Students in the Fifth Grade in Mathematics

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Abstract. The current research aims to amend the strategy (five steps) to adapt it to the mathematics of the students of the fifth grade of primary and to know the impact of the modified strategy on the achievement of the fifth grade students in mathematics. The strategy of the five steps or the so-called Robinson model was used, the sample consisted of (76) female students from Al-Tabarsi Primary School for Girls with two groups. The first group was experimental with 38 students. The second group was control with 38 students. The sample was selected randomly, the search tool was the achievement test was to make sure his psychometric properties, has been the use of the alpha Cronbach equation and test (t) for two independent samples of statistical means, and the results showed. There were statistically significant differences in the achievement test for the two research groups and for the experimental group which was taught according to the modified five steps strategy. By the results, a set of recommendations were written.

Keywords: Mathematics, five steps, Robinson model, SQ3R, SQRRR, SQRRE…

1. Research Problem
Mathematics occupies a great place in basic subjects and can be considered the most important material because of its entry into all areas of life. The student's access to the basic mathematical principles in a precise and precise manner will help to obtain other knowledge and looking at the levels of our students' The teachers are skeptical of the failure of this article, which requires the search for strategies and methods of teaching appropriate to raise achievement and improve the level of understanding.

In the search for many of these strategies, the researcher found a strategy (the five steps) or model (Robinson), namely the text read or text knowledge and because the mathematical text is very important to the student and his understanding leads to the solution of exercises and sports problems correctly has been used this strategy with the deletion one of its steps and replaced by a step (examples) and that of its importance in mathematics.
2. Research Importance

The importance of research is as follows:

1. Presenting the original five steps, then modify this strategy by deleting and adding a new step in order to fit the mathematics, knowing its effectiveness in increasing student achievement and presenting it to the mathematics teachers.

2. Look the studies, research and literature on SQ3R and a range of subjects.

3. The importance of mathematical text and linking it to the text of knowledge advocated by (Robinson) strategy and how to adapt the study plans by the modified strategy to fit the mathematical texts and verbal issues.

4. A new addition to the teaching methods in general and to the teaching of mathematics in particular, which can be used in other subjects such as physics and chemistry, which requires a lot of examples to increase understanding.

5. In response to the development in the world and the call of many researchers to the need to deal with the student as a focus of the educational process and distance the teacher from taking up the role.

3. Research Goals

The research aims to:

1) To amend the strategy (five steps) to adapt it to mathematics for students in the fifth grade primary.

2) To know the effect of the modified strategy on the achievement of students in the fifth grade in mathematics.

4. Strategy (five steps)

Robinson's strategy is also called the American researcher Francis Robinson in 1961. It is also called SQ3R or SQRRR. It is five characters for five steps: Survey, Question, Read, Recite and Review. It was used by many researchers as a result of their effectiveness in increasing the students' absorption of their classes (Al-Jubouri, 2011; Hadi, 2014; Eid, 2015, Abo al-reesh, 2015) and (Shaker, 2011) used the original Robinson strategy in one of his research groups as well as developed the same strategy and applied it in another group for its importance in developing students' understanding of the text identifier.

5. Strategy (five steps) after emendations

The researcher modified the original strategy in order to become suitable for mathematics. The fourth step (Recite) was deleted. It means recalling and placing a special step that comes after the four remaining steps. If we take the letter E from the word examples and put it in the previous four steps, the strategy has been modified by the need for an important step by adding self-examples from the student himself to increase the understanding of the subject. If we have the subject of converting the fractional number to fractional number.

Step 1: The survey or survey in which the student looks at the subject a holistic view includes the vision of the usual forms and fractions taken from them, and then look at the written fractions.
Step 2: Formulate questions on the subject, such as asking the student why the number was found to the left of the fracture? Why did he appear like this? Why does the numeral number change? Why did the same number remain unchanged? And other questions.

Step 3: Reading, searching for answers the questions in the previous step, such as the number is a shortcut to the similar fracture or short to divide the numerator on the denominator without remaining and also change the numeral number because we analyzed it, because we shortened which we analyzed, the usual changes if the place changes..... And others.

Step 4: Review, in which the student closes the book and then goes to review the written questions and answers any review of the whole subject and questions.

Step 5: Examples here the student closes the book and then goes to review the written questions and answers any review of the whole subject and questions.

Step 5: Examples here the student presents examples of his work. He chooses three examples, for example, new numbers for regular fractions, and converts them in fractions by the steps he learned. This step will increase the student's understanding of the subject. By the knowledge text that has been understood from the previous four steps.

(Al-kindi and others, 2016) states that a student has the right to use cards to write questions and use them when reviewing, and here it can be said that the step (examples) is also taken advantage of these cards.

The researcher is interested in this strategy, which was used extensively by the previous researchers in the reading text and the Arabic language is important in reading the mathematical text and the knowledge of the basic mathematical symbols, as confirms (Wales, 2014,110), which states that the words that accompany the symbols mathematics important It must be read in a textual form. Each word can lead to an important mathematical symbol and this is often achieved in verbal matters.

6. Strategic Steps (SQRRE)

1. Survey: This means that the student should look at the mathematical text with its concepts and facts and can draw a conceptual outline of the subject.

2. Question: In this step, the student will develop questions about the mathematical text so that the answers are available through the examples and activities presented and accompanying the text.

3. Read: Answer the questions asked by the student in the previous step.

4. Review: The views, questions and answers are reviewed according to what was written in the notes after the closure of the book (containing the mathematical text), in which there is a serious attempt to recall the reading of the mathematical text.

5. Examples: In this step, the student will formulate a set of examples for the mathematical subject, in the form of questions that need to be solved and answered, and he will answer them in order to arrive at the correct solution and by the original steps and method of solution.

7. Methodology and procedures

1. The sample of the research consisted of (76) female students from Al-Tabarsi primary school for girls with two groups, the first experimental group (38) student and the second group is an control with (38) students also and has used the simple random method during the selection.

2. Equivalence of groups: The equivalence of the two groups was carried out in the following variables:

   a) Age of student.
b) IQ.

c) Test of previous sports information.

3. The statistical results indicated that there are no statistically significant differences in the above variables, which means the equality of the two groups.

Research Design: The semi-experimental design was chosen for two groups to suit the research objectives.

4. Search tool: The achievement test is the appropriate tool for measuring achievement in mathematics, in order to be constructed testing according to the conditions, characteristics and standards approved, has gone through the steps of building as follows:

a. The objectives of the test were to determine the achievement in mathematics subjects for the first semester of the academic year 2018/2017 and to compare the arithmetical averages that appear for both groups in order to know the effect of the method of teaching used.

b. Determination of mathematical content the topics are (groups, rectangles and angles, large numbers, operations on numbers, natural numbers and characteristics).

c. To determine behavioral goals by mathematical content and to choose what achieves all objectives, including the higher goals of (analysis, synthesis, and evaluation).

d. The construction of the table of specifications, by the mathematical content on the one hand and by the behavioral goals on the other, may be (40) paragraph (20) paragraph of the type of multiple choice and (10) paragraphs of the type of supplement and (10) paragraphs verbal issues.

e. Determine (50) fifty degrees, one grade for the substantive subjects (tests + completion) and two grades for each word.

f. The veracity of the test was confirmed. The validity of the test was verified twice. The first was the apparent honesty of presenting it to a group of specialists in mathematics and its teaching methods as well as some of the mathematics teachers and supervisors. The second type of honesty was the validity of the content by presenting the list of objectives and the specifications table with the test and submitted to a group of arbitrators and specialists, and in both procedures were taken simple observations on the test, the process of stability of the test, the researcher used the method of return on a sample of (25) counting 10 days feet again taking into account the Report of the students a week before the test, was used to calculate the alpha Cronbach coefficient consistency between the application has been metric 86.5% afternoon and this factor is an acceptable educational.

g. Print the test: After taking the opinion of the arbitrators to amend some paragraphs and submit and delay some of the terms and numbers and not to delete any paragraph and maintain the corrective grades, the test was printed in final form of (40) paragraph by (30) substantive paragraph, including 20 multiple choice and 10 paragraphs complementary and 10 paragraph paragraphs containing verbal issues.

5. Research procedures: To achieve the research objectives, the researcher took the following steps:

a. To see the above research, studies and references related to the methods of teaching mathematics and low achievement of mathematics.
b. Look at Robinson's original strategy and steps and how to write teaching plans by them.

c. Write a semi-annual plan for the first semester of the academic year 2017/2018 for the fifth grade mathematics book, including the first five chapters of the book, and then write two models of the first daily study plans for the experimental group, which were built by the five steps of Robinson's modified strategy (SQRRE). The second plan was for the control group, which ensures that the same content is presented, but the method used by the teacher at each time, and to ensure the validity of the study plans were presented to a group of arbitrators.

d. Write the rest of the daily study plans by the pre-prepared models and train the teacher on how to use the model of the experimental group plan. The researcher attended some of these lessons to follow up the implementation of the experiment.

e. Application of the test at the end of the first semester of 2017/2018 after verifying its validity and stability, and tabulating the data and statistical analysis for the results A subsection.

8. The Results

1) The first result: to modify the strategy of the five steps (SQ3R) and adapted to fit the mathematics, this goal was achieved by the procedures presented by replacing one of the steps of the original strategy, namely (Recite) a new step to suit the mathematical themes (examples). The student himself by the text of the math. was read in advance, has been welcomed by the step of the mathematics teacher that used the proposed strategy, while the interaction of students was clear compared to the control group.

2) The second result: the impact of the modified strategy on the collection of students in the fifth grade in mathematics and the results have been shown in Table (1).

3) Table (1)

| group   | Number of students | Arithmetic mean | Standard deviation | T value calculated | T value tabular |
|---------|--------------------|-----------------|--------------------|--------------------|-----------------|
| experimental | 38 | 38.12 | 2.76 | 74 | 2.79 | 2.021 |
| Control   | 38 | 31.56 | 1.83 |                 |                |

5) It is clear from table (1) that the arithmetic mean of the experimental group is higher than the arithmetic average of the control group. In order to know the statistical significance, the t-test of the independent samples was applied. The calculated value of t (2.79) is higher than the t (2.021). Thus, we reject the null hypothesis and accept the alternative that states the existence of statistically significant differences and for the benefit of the experimental group which was taught in accordance with the modified (five steps) strategy.

6) Discussion and interpretation of the results: The results showed clearly the performance of the experimental group studied using the modified strategy, and the researcher believes that the reasons for this lies in the following:

a. The five-step strategy (SQRRE) has helped students understand the mathematical text by looking at it, setting up questions and answers and verbally, and then presenting examples. Therefore, these steps have provided psychological reassurance to reach the solution in the students. Interact with the teaching method and achieve better education.
b. The strategy used by its multiple steps made participation by the students in a large way to distribute the activities of raising questions and answers on the one hand as well as put the various examples away in the textbook on the other hand.

c. The results of this research are consistent with most of the studies and researches that dealt with the original and developed model of Robinson, although there is no study that dealt with this strategy with the modification made in mathematics.

d. The use of language in mathematics is very important to clarify the mathematical symbols, which requires attention to texts knowledge and this was done using the modified strategy, which deals with the text of knowledge.

9. Recommendations

1. Training of mathematics teachers during service through the department of training in the directorates of education on the use of modern strategies in teaching, including the proposed strategy (SQRRE).

2. Experimenting the modified strategy on the intermediate and preparatory stage, especially in subjects that include mathematical texts such as knowledge engineering.

3. Training the students of schools and during the lessons of mathematics to put the self-examples and solve them away from the textbook using the same procedures that were understood from the lesson sports.

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