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**THE EFFECTIVENESS OF ORGANIZING THE CONTENT OF SCIENCE
CURRICULUM ACCORDING TO GAGNE'S HIERARCHICAL THEORY
AND REIGELUTH'S ELABORATION THEORY ON THE ACHIEVEMENT
AND CRITICAL THINKING AMONG FIFTH YEAR STUDENTS AT
THE PRIMARY STAGE**

A thesis for
Ph. D. Degree in Education
(Methods of teaching science)

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Introduction

Critical thinking is one of the kinds of thinking that enables a person to recognize objective facts. Besides it enables a person to recognize the correct dimensions of the relationship between the factors of a problem situation.

This is done after a person closely examines the available facts and evaluate his discussions leading, finally to the results.

Since school curriculum is a school; stool in preparing the individual who is capable of correct thinking, the content one of the contents of the curriculum can have a great role in preparing this quality of individual when it is formulated in away that enables an individual to practice the different thinking skills.

Different educational theories introduced practical procedures for content organization. among these theories are Gagne's hierarchical theory and Reigeluth's elaboration theory.

Problem of The Study;

The problem of the present study is identified in the low level of the elementary stage students in critical thinking skills. Moreover, the content of the science curriculum in its present organization does not allow the development of critical thinking skills. The present study aims at answering the following main question: "What is the effectiveness of organizing the content of the science curriculum according to Gagne's Hierarchical theory and Reigeluth's elaboration Theory on the achievement and critical thinking among fifth stage graders?"

This question is divided into the following sub-questions:

- 1- What are the bases for content organization according to Gagne's Hierarchical theory?
- 2- What are the bases for content organization according to Reigeluth's elaboration Theory?
- 3- What is the difference in school achievement among fifth graders at the elementary stage as result of content organization (Gagne , Reigeluth, Traditional)?
- 4- What is the difference in critical thinking among fifth graders at the elementary stage as result of content organization (Gagne , Reigeluth, Traditional)?
- 5- To what extent does critical thinking correlates to achievement in the the organization patterns (Gagne , Reigeluth, Traditional)?

Procedures of The Study:

The study went through the following procedures:

I- Identifying the bases of content organization according to Gagne's and Reigeluth's theory through:

- a- Review of literature.
- b- Review of previous studies.

II- A Theorritical study on critical thinking and its skills through:

- a- Review of literature.
- b- Review of previons studies.

III- Re-organization of the content of the two units: "Energy" and electricity and magnitism as follows

- a- analyzing the content of the two units to identify the learning dimentions included in them.

- b- Reorganizing the content of the two units in the light of Gagne's Hierarchical theory (student's Book and Preparing a teacher's guide
- c- Reorganizing the content of the two units in the light of Reigeluth's elaboration theory. (Studnet's book) and preparing a teacher guide.

The two units were presented to a group of specialists to judge their validity.

IV- Preparing the tools of the study which include:

- a- An achievement test in the two selected units including the remember, understand, apply cognitive levels.
- b- Test of critical thinking including the skills (close examination, deduction, induction, evaluating).

These were presented to Jury members to judge their validity.

V- Selecting the population of the study:

The population of the study included fifth graders at the primary stage. They were selected from three schools at Benha educational zone. They were divided as follows:

- a- Experimental group 1 studying according to Gagne's Hierarchical theory.
- b- Experimental group 2 studying according to Reigeluth's Elaboration theory.
- c- Control Group studying according to the organization of the content of the text book.

VI- pre- application of the tools.

VII- Teaching the two units according to the previous design using the teacher's guide.

VIII- Post application of the tools, Statistical analysis of the results.

Results of the study:

- 1- There are no statistical differences among the students of the three groups on the achievement test at the remember level.
- 2- There are statistical significant differences at the 0.01 level between mean scores of the experimental group 1 (EG1) and the control group at the levels of understanding – application and whole test) in favor of EG1.
- 3- There are statistical significant differences at the 0.01 level between the mean score of the experimental grope 2 (EG2) and the control group at the levels of understanding – application and whole test in favor of EG2.
- 4- There are no statistical significant differences between the mean scores of the students at the EG1 and the EG2 on the achievement test at the levels understanding, application and the whole test.
- 5- There are statistical significant differences at the 0.01 level between the mean scores of the students in the EG1 and the control group on the test of critical thinking in favor of the EG1.
- 6- There are statistical significant differences at the 0.01 level between the mean scores of the students in the EG2 and the control group on the test of critical thinking in favor of the EG2.
- 7- There are no statistical significant differences between the mean scores of the students in the EG1 and the EG2. On the test of critical thinking.
- 8- There is a positive correlation at the level 0.01 between academic achievement and critical thinking among the students in the EG1 and the EG2. But there is no significant correlation among the students in the control group.