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**THE EFFICIENCY OF INSTRUMENTAL ENRICHMENT STRATEGY IN TEACHING
MATHS. AND ITS EFFECT ON DEVELOPING SOME THINKING SKILLS OF
PREPARATORY STAGE STUDENTS**

An abstract of Master's Degree Thesis in Education
"Curriculum & Methodology of Maths"

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Introduction

Thinking development of students is an essential aim of Maths. Teaching aims in different stages of education. This is indicated in the modern attitudes of Maths. Teaching which point to the importance of concentration on students' ability development on good thinking and acquire them the skill in using different styles to thinking till it becomes a part of the intellectual formation of the student which develops his ability to solve what faces him of the problems in his environment nowadays and in the future in scientific style.

For this was the importance of searching for the most suitable alternatives and strategies which bases on conversation, discussion and the teacher is to train the students through them on practicing criticism, analysis, concluding, comparison and making decision. But to be able to teach thinking and develop it, we should the suitable strategies to achieve this aim through employing all their activities and instruments inside curriculum content has been prepared & organized to help student to become an active and positive intellectual in teaching operation.

Problem Identifying:

The Current study problem is identified in the low level of thinking skills in Maths of the students of preparatory stage.

To face this problem, the current study tries to indicate Instrumental Enrichment Strategy Efficiency in Teaching Maths and the effect of it on developing some thinking skills of preparatory stage students by answering these questions:

- 1- What are the thinking skills suitable for preparatory stage students?
- 2- To what extent do they master these skills?

Summary of the study_____

- 3- What are the features of instrumental enrichment strategy for teaching maths to preparatory stage students?
- 4- What's the effectiveness of instrumental enrichment strategy in developing some thinking skills in Maths for preparatory stage students?
- 5- What's the effectiveness of instrumental enrichment strategy in developing studying Maths (achievement) for preparatory stage students?

The importance of the study:

The importance of current study comes through what we can contribute with in:

- 1- This study is a response for many recommendations of studies, previous researches and conferences by applying strategies and modern teaching entrances in teaching and learning Maths. Instead of the common method as teaching by using instrumental enrichment strategy is considered one of modern attitudes in education technology age.
- 2- Presenting important educational signals to improve the practice of teaching & learning Maths.
- 3- Helping students to acquire efficient methods in fining out information, solution methods & thinking, and logical evidence what leads to overcome lack and weak sides in thinking skills and studying increasing.
- 4- Offering help to curriculum designers to consider some special bases concerning with teaching activities, subject view method, and organizing the curriculum content to guarantee the prepared curriculum acquiring student different thinking styles.

Limitations of the study:

The current study will specialize with:

- 1- A sample of second preparatory grade students. This because the nature of study sample in the beginning of formal and abstract operations stage is according to intellectual developing stage of Biajet.
- 2- Distance unit that decided to be taught to second grade students in the second term, this because the content of this unit consists of images and basic generalization that learning them contribute in understanding a lot of information and engineering ideas, and they contribute in the students' intellectual development rather than they reveal a lot of engineering relationships among different bases to find the forms' distance. This leads to development of their thinking and engineering knowledge employment in practical life, this what make the student estimate the value of what he learns in this field.
- 3- Some thinking skills (Critical thinking , Reasoning thinking and Creative thinking)
- 4- Levels of achievement (Remember, understanding, application, problem salving).

Terms of the study:

1- Instrumental enrichment strategy:

- (Martin and Jonas: 1988: 1) define it as a group of procedures which are done by the teacher inside the classroom to correct the weak cognitive functions of the learner and provide him with learning essential necessities and problem solving.
- Defined procedurally in this research as a group of procedures and teaching activities which the teacher follow inside the classroom in a certain time sequence during Maths. Teaching using a number of

enriching instruments each one is exercises of pen & Paper for the sake of practicing or training students on thinking skills that he aims at developing them.

The Skill:

- Is defined as the easy and accurate performance, based on understanding what man learns psychomotorally and intellectually with the decrease of time, effort and cost.
- The researcher defines it procedurally as the learner's ability to perform a work with more quick, accuracy and understanding. This performance may be psychomotorally or intellectually.

Thinking skills:

An intellectual activity through which the individual acquires information, this means that it's an intellectual activity helps in forming an idea or problem solving or making suitable decision.

Critical thinking:

Is defined as a mental activity the learner does when facing a problem and through which the learner practices the mental skills to conclude and construct new ideas which enable him to make correct and proper decisions that help him in solving the problem and is expressed by the score the learner has in the critical thinking prepared for this study.

Reasoning thinking:

Is defined as a mental process in which the learner tries to make use of the available data and information to find out new results by following conductive steps and relating every cause with its result and then realizing the relationships between the results to reach a specific new

relationship and is expressed by the score the learner has in the reasoning thinking prepared for this study.

Creative thinking:

Is defined as the learner's ability to generate various solutions in unpatterned mathematical activities. These activities do not have only one solution and it may be mathematical situations or problems that require finding new mathematical patterns, relationships or instructions or including some new geometric figures or solving unpatterned mathematical problems.

Procedures of the study:

The study is done according to the following procedures:

First: studying integrated theory around both instrumental enrichment & thinking (his nature – qualities – skill – development instruments) this in the light of:

- 1- Arabic & foreign references.
- 2- Previous studies and researches (Arabic – Foreign).

Second: Preparing a list of suitable thinking skills of preparatory stage students, this in the light of:

- 1- Arabic & foreign references.
- 2- Previous studies and researches (Arabic – foreign).
- 3- Academic study on preparatory stage students' qualities.
- 4- Establishing the list in its primary form and viewing it on a group of judges.
- 5- Establishing the list in its final form.