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The Effectiveness of Hypotheses and
Experiments Lessons' Strategy (HELs) in
Modyifying Alternative Perceptions and
Developing some Learning Processes Skills
in Science among First Year Preparatory
Students

An MA thesis

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Abstract

Title of the study: "The Effectiveness of Hypotheses and Experiments Lessons' Strategy in Modifying Alternative Perceptions and Developing some Learning Processes Skills in Science among First Year Preparatory Students".

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• Specialization: Curricula and Methodology of Science.

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• **Objective of the Study:**

This study aimed at identifying the effectiveness of teaching through using the Hypotheses and Experiments Lessons' Strategy in modifying alternative perceptions and developing some learning processes skills in science among first year preparatory students. In order to achieve the objectives of this study, the semi-experimental method was used on a random sample of 63 students from the first year preparatory students in Fayoum governorate. They were randomly divided into two groups; experimental and control. The experimental group included (30 students) and studied the unit of "Chemical Reactions" according to the Hypotheses and Experiments Lessons' Strategy.

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However, the students of the control group (33 students) studied the same unit in the usual traditional way.

The results of the study found out that the students of the experimental group, who studied according to the Hypotheses and Experiments Lessons' Strategy, were superior to the students of the control group, who studied through the traditional methods of modifying alternative perceptions of scientific concepts and developing some learning processes skills in science (observation, communication, prediction, conclusion, using numbers, interpretation, adjusting variables, procedural definition, imposing hypotheses and verifying their validity).

In the light of the results of this study, the researcher recommended the preparation of diagnostic tests to reveal the alternative perceptions of students of scientific concepts in different educational stages, and the holding of training courses for teachers and educators of science to familiarize them with the importance of the Hypotheses and Experiments Lessons' Strategy as well as training them on how to prepare lessons according to each stage. Besides, it is necessary for educators and curriculum makers to provide a teacher's guide for science teachers to clarify suitable methods and ways of teaching for each subject of the course. Besides, it is essential that the contents of science curricula should include a number of activities and experiments, either exploratory or applied, which helps to develop learning processes skills in science among students.

Moreover, the researcher suggested conducting research to measure the impact of other teaching methods that could contribute to modifying alternative perceptions of scientific concepts and some learning processes skills in science among first year preparatory students and various educational stages through teaching science such as non-hierarchical mental maps and the six thinking hats .

Key Words:

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Hypotheses and Experiments Lessons' Strategy, Alternative Perceptions of Scientific Concepts, Learning Processes Skills.

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