The Effect Of The Good Lavoie Model On The Acquisition Of Scientific Concepts Among Fifth-Grade Primary Students) Of The International Content

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Abstract

The present study attempts to identify The application of the four stages of learning (Good Lavoies model) on the ability of the learner in the extent of the concept's knowledge, comprehension and application of the fifth grade primary students. The research community has been identified with fifth-grade primary students in Al-Furatin School. The elementary school of the General Directorate of Education, AlKarkh, the first for the academic year (2020 - 2019), where the researcher used the experimental design with two experimental and control groups, one of which controls the other partly and from the post-test subjects to acquire scientific concepts, and according to this design the sample was chosen. For the two research groups to be represented, as the number of the sample population reached (60) students and by random appointment, Section (A) was chosen to represent the experimental group and the number of its members (30) is taught according to the Good Lavoies' model, while Section (C) represents the control group and the number of its members (30). (A student taught according to the usual method, the two groups were rewarded in the variables of previous information, intelligence, and previous achievement in the science subject) The scientific subject was identified in the first, second and third units of the science book for the fifth grade of primary school, the experiment was applied in the first semester of the academic year (2019 - 2020) The researcher taught M. The two research groups themselves and teaching plans were prepared as they reached (24) plans for the experimental group, and similarly to the control group, behavioral goals were represented representing acquisition of the three units, and the number (72) targets represented by the three levels of acquisition (definition, discrimination and application), as for the research tool. The scientific concepts acquisition test was prepared consisting of (72) objective paragraphs of the multiple choice type, the validity of the tool was confirmed and proven using the Koder Richardson equation 20 for the concept acquisition test as it reached

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(0). The ratio indicates that the tool obtained high stability, and the results of the research using the second test of two independent samples showed the following: The experimental group students who studied according to the Good Lavoies' model outperformed the students of the control group that studied according to the usual method of testing the acquisition of scientific concepts. As the T value (calculated) reached (3, 75), while the tabular T value (2) reached at the level of significance. (0, 05) Thus, the null hypothesis was rejected, and through the results I concluded the The application of a model on the acquisition of scientific concepts for fifth-graders Good Lavoie elementary, and based on what the researcher recommended a number of recommendations, including the need to introduce modern models in the teaching of science because of its importance. In acquiring different concepts and training teachers of science subject in the use of modern models and how to prepare teaching plans, both before and during service, as the researcher suggested conducting more studies on different study materials and different levels of study and on other variables **.**

Keywords: The The application s; The Good Lavoies' model; Acquisition; Scientific Concepts

1.1. Introduction: The Problem of Study
The current era witnesses a tremendous development in scientific knowledge in all aspects, including education, and this in turn is reflected in teaching methods and their various methods, including science, as it has become necessary to use methods and methods that are in line with this development, and in which the learner must be the focus of educational science.

In light of the development taking place in the curricula of modern science, students suffer from difficulty in acquiring scientific concepts, especially the concepts included in the science curriculum for the fifth grade of primary education, due to the many concepts in this subject and the usual method used in teaching, and this is what causes the low level of scientific students and difficulty in acquiring those concepts.
The researcher conducted a survey of the views of science teachers in some primary schools of the General Directorate of Education for the First Karkh. The number of its members reached (15) with two female teachers in each school, and the teachers distributed an open questionnaire to the teachers.
In the light of that questionnaire, the researcher believes that there is a problem that needs to be studied, so a Good Lavoie model was adopted to know the The application of acquiring scientific concepts for fifth-grade primary students in the science subject, by formulating the problem with the following question (What is the The application of the Good Lavoie model

on the acquisition of fifth-grade primary students to concepts Scientific, fifth grade primary).

1.2. The Value of Study

Today human life, in all its details, is not without the influence of science, as it helps him to be familiar with life and body information. Teaching science at the primary stage aims to help students gain scientific concepts in a functional way. The primary task in teaching science is to teach students how to think correctly Not how to memorize content without understanding it (Katut, 2009: 25).

The Good Lavoie model is considered one of the modern models of the modified learning cycle. The stages of the Good Lavoie model consist of the same stages of the regular learning cycle, but with the addition of another element at the beginning of the learning cycle, which is the stage of prediction or the use of prediction sheets for learners where their scientific ideas are clarified because the prediction of The skills of cooperative inquiry, which is an important goal that scientific education seeks to achieve (Blank, 2000: 488) and is considered one of the modern teaching models that contribute to helping students acquire scientific concepts through their research to solve educational problems and situations facing them, and the interaction between themselves and the environment Shawn has various experiences and activities in it ((Lavoie, 1999: 27) so the researcher chose the Good Lavoie model as it suits the current study in learning and gaining concepts, and helps students deal with information in a way that leads to constructing concepts correctly and integrated as most modern models confirm In teaching, the necessity of self-independence for learners in the educational process and learning the concept.

As a result of the above, the importance of the study is demonstrated by the following:

1.The importance of teaching science for the fifth grade of primary school, as it includes multiple topics that help students gain scientific concepts.

2.The importance of using modern strategies and models in teaching science in the mentioned stage in the face of criticism directed against traditional education used in primary schools, including the Good lavoie model.

3.It is considered the first study that examined the The application of the Good lavoie model on acquiring scientific concepts (according to the researcher's knowledge).

1.3. The Goal of Study

The research aims to know the The application of the Good Lavoie model on acquiring scientific concepts among elementary fifth graders.

1.4. The Hypothesis of Study

There is no statistically significant difference at the level (0,05) between the average scores of students of the experimental group who are studying science subject according to the Good Lavoie model and the average scores of students of the control group who are studying the same subject in the traditional way of testing the acquisition of scientific concepts.

1.5. The Limits of Study

The research is limited to: Fifth primary school students at Al Furatain Elementary School in the Baghdad Directorate of Education, Al-Karkh First, first semester of the year (2019-2020), the content of the science textbook to be taught by the Ministry of Education.

1.6. The Definitions of Terms

1.   After: - (Shebar et al. 2006) defined him as "a set of procedures and means that are used by the teacher, and using them enables the students to benefit from the planned educational experiences, and to achieve the desired goals." (Shubr et al., 2006: 21).

The researcher defines it procedurally as: a set of procedures that are planned by the researcher and that are adopted with fifth-grade primary students the experimental group of the research sample in order to achieve the desired goals

1.   Good lavoie model was defined by (Tarawneh 2008): - as "a teaching model developed by the world of lafoyes by adding a fourth stage at the beginning of the three stages of the usual modified learning cycle and the three stages are the stage of prediction, and thus the model has become composed of the following stages of the prediction stage, the stage of exploring the concept The stage of extracting the concept and the stage of applying the concept. "(Tarawneh, 2008: 34).

Procedural definition: It is one of the modern teaching models that contains a few stages and activities for teaching scientific concepts by which students of the experimental group are taught. It includes four stages:

(prediction stage, exploration stage, extraction stage, and application phase(.

1.   The acquisition of the concept

To Blaybel (2001): - It is "the ability of the learner to know the concept and its understanding and application, and it is measured by the total number of degrees that students obtain in the test of acquiring scientific concepts that was built by the researcher" (Blaybella, 2001: 13).

Procedural definition: The scientific concepts that consist of fifth-grade students consist of scientific concepts related to the terms mentioned in the units (first, second and third) of the science book for the fifth grade of primary education and measure this acquisition by the

degree they obtain in the acquisition of scientific concepts that was built by the researcher To know the extent of their scientific concepts.

4- Fifth Primary Class: - It is the penultimate grade of the primary stage consisting of six classes, which prepares the student to the intermediate stage after the sixth primary grade (Ministry of Education 2019).

1. **Theoretical Framework and Previous Studies**

2.1.The first axis: Theoretical Framework: Good Lavoies' model

 The Revised Learning cycle, developed by the world of Laughing)Lavoie, 1999) is one of the constructive teaching models that seek to achieve the goals of learners, through their research in finding solutions to problems, tasks and educational situations facing learners." (Tarawneh, 2011: 2293(.

The Good Lavoies' model is appropriate for teaching science as it mainly reflects the investigative nature of the teacher to achieving goals and other goals such as learning concepts, and the learner can acquire scientific concepts and skills (Lulu and Aga, 2007: 203), and (Blank, 2000) indicates that Good Lavoie model is one of the modern models that have been developed that has come up with a design for the epistemological learning cycle model (Blank, 2000: 488).

The stages of Good Lavoies' model

It consists of four stages: 1. The stage of Prediction 2. The stage of discovery 3. The stage of presentation concept 4. The stage of implementation concept. (Hinnawi, 2004: 36).
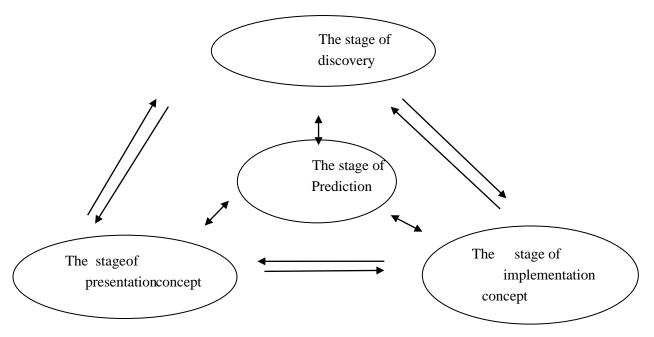
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Figure (1): The Stages of Good Lavoies' Model

The characteristics of Good Lavoies' model

1. It uses higher thinking skills. 2.It takes away a lot of misunderstanding. 3.Many questions need to be developed. 4. A successful and advanced classroom management is required. 5. Use practical and scientific process skills. 6. It requires more interaction with fellow students. 7. Make learners love science more (Jasim, 2000: 60).

2. The second axis: - Scientific Concepts

Scientific concepts are among the most important outcomes of science through which scientific knowledge is organized with meaning, as it is one of the organized and directed elements of all scientific information that is presented in the classroom (Abdul Salam, 2001: 146).

The term concept is notwithstanding the difference in languages and expressions used in its definition and description, but there are indications for finding agreement between researchers in psychology and education about the data for this term and from these definitions are the following- :

Including the definition of the national body for educational study in its forty-sixth book, issued in 1947, as it defined it as "a synthesis or organization of ideas and meanings" (Alwan et al., 2014: 57 (.

-Psychological and logical definitions

Psychological definition as "a mental mental perception and a mental conclusion to the different facts and experiences gives a name or title and indicates a scientific meaning that helps the learner to understand and explain phenomena" (Abdel-Sahib and Ashwaq, 2012: 32).

A logical definition is "an expression intended to describe a grouping of things or facts according to specific characteristics that is distinct from other things or facts." (Yassin and Raji, 2012: 40).

-The importance of learning scientific concepts

1. Understanding concepts makes the subject matter more comprehensive.

2. Not forgetting the details when organizing them in a structural framework.

3.Reducing the gap between simple knowledge and advanced knowledge.

4.Assisting advanced generations in facing the knowledge explosion and rapid development.

5.Understanding concepts is the primary way that helps increase the The application iveness of the transmission The application of training and education (Al-Dabaa, 2001: 69).

-Factors affecting the acquisition of concepts:

 Learning concepts is affected by a set of factors, including: 1.Number of examples 2. Examples and no examples 3. Type of concepts 4. Experience 5. Individual differences between the learners 6. Feedback

(Yassin Raji, 2012: 60).

 -Conditions for learning concepts

1.That the learner have some necessary information, basic skills and experiences in order to learn new concepts.
2. Motivating the learner to participate in educational activities.

3.That the learner has sufficient ability to learn in order to be able to participate in educational activities.

4.That the learner be given some guidance in order to maintain positive motivation in order for education to be effective.
1. To provide the learner with some teaching aids, such as stereotypes, books, or films, in order to bring the concepts closer to him.
2. That the learner be given enough time to be able to participate in educational activities to be able to discover the scientific concept himself (Ibrahim, 1997: 209).

2.3. The third axis: Previous Studies
This section examined some of the studies that preceded the time of the current research, it dealt with the independent variable Good Lavoie and its The application on the variable (acquisition of scientific concepts). First: Previous Studies

1.**The Study of Lavoie (1999)**

The aim of the study is to investigate the effect of adding a predictive and discussion stage at the beginning of the three-stage learning cycle (exploration, concept presentation, and application). In the predictive stage, students were asked to write predictions and explanatory assumptions for concepts (genetics, balance, ecosystem, and natural testing), then conducting a discussion and dialogue (for their predictions and interpretations). The sample consisted of (250) students within ten groups, as they were divided into five experimental groups, And five control groups. Experimental groups were studied using the triple learning cycle and the predictive stage added, and the control groups studied using the traditional learning cycle, and a battery of tests was used to measure mental development changes, questionnaires, observations, and notetaking, and after analyzing the results, the results showed the usefulness of the learning cycle shown on prediction and discussion in the acquisition Scientific concepts, skills, scientific trends, and logical reasoning (Lavoie, 1999, p. 1271-1147).

1. **The study of Al- Shammari (2017)**

The research aims to identify the effectiveness of teaching in the Good Lavoie model in the acquisition of female students in the fourth grade of scientific biological concepts and the development of their environmental consciousness. The experimental group included 35 female students who studied using the Good Lavoie model and the other was chosen to represent the control group. It included 35 female students who studied using the traditional method. The two groups were rewarded in variables that may have an effect on the

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independent variable (previous achievement in biology, test T Previous information, intelligence test), and there were no statistically significant differences between the two groups in these variables. As for the research tool, the acquisition of biological concepts test consisted of (87) objective paragraphs of the multiple choice type, and the results showed that using the T test exceeded Experimental group students who studied using the Good Lavoie model on control group students who studied according to the traditional method of acquiring biological concepts (Al-Shammari, 2017).

The Third Section

The Test		The Dependent variable	The Independent Variable	The Valence	The Group
After	Before				
The test of acquiring the Scientific Concepts		The acquisition of Concepts	Good Lavoies' Model	The Intelligence of Previous information of Previous achievement In science	The e Experimental Group
			The normal approach		The Control Group

1. **1. Research methodology and procedures**

First: Research Method and Experimental Design: The researcher adopted the experimental approach as a research method, and it is considered one of the research methods that uses the experiment in an assumed test that determines a relationship between two factors or two variables, through studying the opposite positions that set all the variables except the variable that the researcher is interested in studying its effect, The researcher chose the experimental design with two experimental and control groups, one of them controls the

other partly and from the post-test subjects to acquire the scientific concepts scheme (2) figure (2) an approved experimental design for individuals research sample.

Second: The Research Community and its sample:1. Research community: The current research community includes all fifth-grade primary students in the Al-Furatain mixed elementary school of the General Directorate of Education for the First Year of Education for the academic year (2019-2020). 2. Research
Sample: This school was chosen for the purpose of applying the research experiment intentionally, Division (A) was randomly assigned to represent the experimental group that is taught according to the Good Lavoie model and Division (C) to represent the control group that will be taught according to the usual method, and the number has reached The members of the sample in the two groups are (60) students, at the rate of (30) students for each group, as shown in Table (1).

The Group	The section	The number of student before the exclusion	The number of failed students	The number of student after the exclusion
The experimental	A	30	0	30
The control	C	30	0	30
The total	2	60	0	60

Table (1): Number of members of the research sample in the experimental and control groups, before and after exclusion

Third: Equivalence of the two research groups:

The two groups were rewarded by the researcher before starting the experiment to reduce the effect of some of the overlapping variables on the results of the experiment, as shown in Table (2):

The variable	The Group	The Number	The average Arithmetic	The variance	T Value The Favoritism	The Tabular	The Significance level
The Intelligence	The Experimental	**30**	43.72 43.72	40.72	1.82	**2**	Not significant at level
	Control	**30**	40.32	39.61			
The previous information	The Experimental	30	17.08	10.38	1.16		0.05
	Control	30	16.11	10.10		**2**	
The Previous achievement of science	The Experimental	30	76.25	71.29	1.21		
	Control						

Table (2): Statistical significance for the equivalence of students of the two research groups

Fourth: Other Control Procedures:

Control of foreign variables

They are the variables that affect the result of the research but are not intended in the study and that have a clear impact on the dependent variable of these variables as follows: (maturity, subject teacher, study material, distribution of shares, time period, measuring instrument, location and confidentiality of the experiment, experimental extinction, Accident Accidents) that the research did not experience such variables .during the experiment
Fifth: Research requirements:

1. Defining the subject and scientific concepts : Before starting applying the research experiment, the researcher determined the scientific subject that will be studied during the experiment, from the science book to be taught in the first semester of the academic year (2019 - 2020 AD) for the fifth grade of primary school, as was indicated within the limits of the research, which includes three units:

A.   - The first unit (classification and diversity) has 35 pages from 16 to 51, with a number of (2) major concepts and (4) minor.

B.   - The second unit (the human body and health), the number of its pages (33) pages from page 52 - 85 and

.the number of concepts (2) major and (4) secondary
A.   - The Third Unit (Article): The number of its pages is 35 pages from 86 to 121 pages, with a number of (2) major concepts and (4) minor. After the researcher identified the scientific subject as shown above, she analyzed the content of the three units and extracted the concepts contained therein (the main concepts and secondary concepts) and was presented to a group of experts and arbitrators to ensure their classification,
then the researcher studied the concepts in the subject to be taught.

2. Formulating the goals of acquiring scientific concepts: The behavioral goal is the outcome of the educational process and it describes the expected performance of the learner by the end of the educational position. (Age, 2007: 45), the researcher formulated the objectives of acquiring the concept of the academic content according to the three levels of the concept which are (defining the concept, distinguishing the concept, applying the concept) and for each of the three units, its number in its initial form reached (72) targets

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distributed over the three levels of the concept By (24) goals for each level, the goals were presented to a group of experts in the field of psychology and methods of teaching science and education to show their views on their clarity and accuracy of formulation and the extent of their coverage of the content of the scientific article and determine the level measured by each paragraph, and the researcher obtained an agreement rate of 84% of the views Arbitrators and experts..

The Units of Contents	The levels			The number of Items
	The definition	The Discrimination	The application	
The seven Chapter	9	9	9	27
The Eight Chapter	9	9	9	27
The Nine Chapter	6	6	6	18
The Total	24	24	24	72

Table (3): Distribute test items according to chapters and concept levels

Preparing daily teaching plans

The teaching plan is a plan and summary of the topics that must be covered in teaching, and the researcher has developed the appropriate teaching plans for the research topics to be taught in light of the educational content of the subject matter represented in the first, second and third units in the science subject for the fifth grade of primary school, numbered (14) plan with (14) A working group for the experimental group according to the form of Good Lavoie and (14) a plan for the control group according to the usual way.

4. Experiment tool:
First: A test of acquiring scientific concepts: In view of the absence of certain tests in such a field, the researcher built a test of acquiring scientific concepts for (6) major concepts and (12) secondary concepts, and each concept has three paragraphs, one of which measures the definition, the second is distinction, and the third is the application, thus the number The test paragraphs (72) are multiple choice type, and each paragraph (4) alternatives.
And build the test by following the following steps:

1.Defining and formulating the test paragraphs: The formulation of the test paragraphs is one of the basics of the research. The researcher has formulated the test paragraphs according to the objective tests, because they have an advantage compared to the essay tests, and their ability to measure educational outcomes with multiple skill and mental levels, in addition to the subjectivity and accuracy Comprehensiveness, economy in effort and time, and their compatibility with a high degree of honesty and persistence (Allam, 2001: 81). The researcher designed a multiple choice type test that consisted of (72) test items that measure the acquisition of scientific concepts and the number (24) concept and each concept (3) paragraphs.

 2. Validity of the paragraphs: After the researcher prepared the test in its initial form, it was presented to a group of experts and arbitrators in the fields of measurement, evaluation, psychology and methods of teaching science to show their opinions and observations about the validity of the test paragraphs, their coverage of the content (scientific concepts), the safety of their construction, and determining the level that each measures a paragraph.

3.Setting instructions for answering the test and correcting the test: The researcher formulated the instructions for the test and how to answer it, as well as the criteria for correction.

4. Verify the test

Know the truth of the test is that the test is designed to measure what was set to measure it or measure the phenomenon studied, and in order to verify the validity of the test the researcher used the following:

A.   apparent honesty: It is the general appearance of the test or its external image in terms of the type of vocabulary, how it is formulated, the extent of clarity of these vocabulary, and also deals with test instructions, their accuracy and degree of objectivity and accuracy. (Al-Jabri, 2011: 217). In order to achieve this indicator of honesty, the researcher presented the test items in their preliminary form to a number of experts and arbitrators in the field of measurement and evaluation, and methods of teaching science.

B.   Truthfulness of the content: means the honesty that is done by conducting a logical analysis of the scale's articles, paragraphs, and items to determine the extent to which they represent the subject of the measurement and the situations that measure it. (Chalabi, 2005: 89). 5.The exploratory application for the acquisition of scientific concepts:

 To ensure clarity of the paragraphs and test instructions, and to determine the time taken to answer all the paragraphs of the test, as well as statistical analysis of the paragraphs and calculate the coefficient of stability, the test was applied in cooperation with the school's

teachers to a sample of the students remaining from the same school in which the experiment was conducted and the number of (30) students, and did not appear Students are any notes worthy of mentioning, and the average total time for answering all paragraphs was calculated and reached (30) minutes, as he completed the first five students in the 22nd minute and the last 5 students in the 30th-38th minute, respectively.

Statistical analysis of test items: The paragraph analysis process includes (paragraph difficulty factor, paragraph recognition strength, effectiveness of alternatives, impact size).

6.Test stability: stability is defined as the degree of consistency or stability in the scores achieved on the measuring instrument over time.

Al-Batsh and Abu Zeina, (2007: 134) The researcher used the equation (Koder Richard Sun-20) to calculate the stability of the test, where the test stability coefficient with this equation was (0,85), which is a very good stability coefficient.

Sixth: Procedures for applying the experiment:

1. The experiment was applied to the research sample for the two groups (experimental and control) starting from Sunday 6/10/2019 until the end of the first semester on Thursday 23/202020 of the academic year 2019-2020.

2.After completing the teaching of the specified academic subject, the students of the experimental and control groups were notified, there will be a test for them in the three units (the first, the second and the third), and after four days the test of the post-scientific acquisition of the two research groups was applied on Wednesday, 22/1 / 2020, after which the answers were corrected according to the typical answers.

Seventh: Statistical Methods:

The researcher used statistical means both in the research procedures or in analyzing the results of the research, which are as follows (arithmetic mean, T-test for two independent samples, difficulty factor, discrimination coefficient, Cooper agreement equation, equation for the effectiveness of incorrect alternatives, Koder-Richard Sunn equation - 20 (KR 20)).

the fourth chapter: Research findings, recommendations, conclusions, and proposals First: Present the results

1.Results related to the first hypothesis which states: (There is no statistically significant difference at the level of significance (0.05) between the average scores of the experimental group students who studied according to the Good Lavoie model and the average score of the control group students who studied in the usual way in testing the acquisition of scientific concepts)

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After correcting the answers of the students of the two groups, searching for the paragraphs of the acquisition of scientific concepts, the results showed that the mean of the total scores obtained by the experimental group students (70.14) and the variance (64.76). The mean of the total scores obtained by the students of the control group (62.47) variation (57.31). To find out the significance of the statistical difference between these averages, the researcher used the T-test and the results appeared as in Table (4).

The Group	The Number of Students	SMA	The Variance	The Degree of Freedom	T- Value		The Statistical significance at the level (0.05)
					The Calculated	The Tabular	
The Experimental	30	70.14	64.76	58	3.75	2	The Statistical significance
The control	30	62.47	57.31				

Table (4): An indication between the average test scores for the acquisition of scientific concepts for students of both groups (experimental and control)

It is clear from the above table that there are statistically significant differences at (0.05) level in favor of students of the experimental group and thus rejects the null hypothesis.

Second: Interpreting the results

1.With regard to the research hypothesis, the results showed that there is a statistically significant difference in the test of acquiring scientific concepts for the benefit of the experimental group and this means that the students of the experimental group who studied according to the Good Lavoie model surpassed the students of the control group who studied according to the usual method, and thus rejects the hypothesis.

This can be due to: A- The teaching of fifth-grade primary students according to the Good Lavoie model of science makes them more attentive in the lesson, this is what the researcher observed during the trial period.

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A.   The stage of interpretation encouraged students to speak, dialogue and discuss with one another.

B.   Working in the form of cooperative groups makes the student the focus of the educational process.

Third: Conclusions:

In light of the results of the current research, the following conclusion can be made:

Students of the experimental group who studied the Good Lavoies' model surpassed the students of the control group who studied the usual way in acquiring scientific concepts.
Fourth: Recommendations
In light of the research results, the researcher recommends the following:

1. Introducing the Good Lavoies' model in teaching due to its importance in acquiring scientific concepts.

2.Attention to teaching scientific concepts according to modern and appropriate teaching methods, strategies and models such as Good Lavoies' model, SWOM strategy, learning contracts and others.
3.The necessity of involving students in learning and giving them the opportunity to express their opinions and opinions, and not to impose restrictions that impede them.
4.Training teachers of science on how to use the Good Lavoies' model and how to prepare in-service teaching plans so that they can use them in science education, which provides a modern educational environment that enables them to later employ their skills themselves.
Fifth: The proposals

Complementing the current research, the researcher suggests conducting the following studies:

1.It deals with the The application of the Good Lavoies' model on other subjects and other academic stages.

2.It deals with the The application of the Good Lavoies' model compared to other educational models on acquiring scientific concepts.
3.It deals with the The application of the Good Lavoies' model on other variables such as achievement, retention, curiosity, critical thinking, cognitive thinking, divergent thinking, and others.

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