

# THE EFFECT OF PDEODE'S STRATEGY IN THE ACQUISITION OF GEOGRAPHICAL CONCEPTS FOR STUDENTS OF THE FIFTH LITERARY GRADE OF GEOGRAPHY SUBJECT

**Assist. Prof. Dr. Mohammed Mahdi Hussein**

University of Kufa/ College of Basic Sciences

[mohammedm.hussein@uokufa.edu.iq](mailto:mohammedm.hussein@uokufa.edu.iq)

## **ABSTRACT**

*The study aims at knowing the effect of PDEODE in acquiring the geographical concepts in the students of the fifth literary branch for the Geography class, and in order to achieve the objective of the study the researcher has formulated the following hypothesis: there are no differences with statistical significance at level of significance (0.05) in acquiring the geographical concepts among an average of marks of the experimental group students studying geography by the use of PDEODE strategy and the students of the control group that studies the same subject in the same traditional method in testing the acquisition of the concepts and the sample of the study has included the students of the fifth literary branch in the Khournq preparatory school that belongs to the General Directorate of Education in AnnajafAlshraf for the academic year (2017-2018) and the (69) students are distributed on two groups that are the experimental and the control, whereas the experimental group would study in the mode of PDEODE strategy and the control group would study in the traditional method. The researcher has prepared the main plans about (20) for the two groups after he formulated the behavioural objectives that are (60), in addition to preparing the test of concepts acquisition that consist of (60) testing items in form of multiple choice and was confirmed for its validity, stability, difficulty and discrimination coefficient were, and then parity was made between the two groups in the variables of chronological age, previous academic achievement and intelligence. The researcher has applied the experiment from the date of 22-Feb-2018 up to 22-April-2018 after that the researcher has applied the test of concepts acquisition, and after*

*correcting the answers the researcher has reached to results that after being statistically analysed with the use of T.Test, The results have showed that the students of the experimental group outperformed the students of the control group and that is attributed to the use of PDEODE strategy in teaching the Geography subject and the acquisition of the Geographical concepts.. Where the researcher recommended the use of PDEODE strategy in teaching geography for the fifth literary Grade and the need to pay attention to teaching geography because of its impact on the teaching and learning process. The researcher suggested conducting a similar study to the current in other study subjects, and conducting a similar study to identify the impact of PDEODE strategy on other variables such as achievement and creative thinking.*

***Keywords: Concept of PDEODE, Hypotheses of the PDEODE's Strategy, Characteristics of Hypotheses of the PDEODE's Strategy***

## **Introduction**

### **(I) The Problem Statement**

Geography is regarded as one of the important study subjects, and the aim of teaching it at different levels is a development for the mind capabilities of the students, and waking up for their love for the geographical reconnaissance, the learner of geography finds difficulty in studying the geography subject particularly regarding the geographical concepts, and usually that is attributed to the approaches that are followed in teaching it and not to the nature of the subject itself ( Abdullah,3,2003).

( Alshibli,1997) confirms that the relying on the regular approaches in teaching Geography that concentrates on the theoretical side and stuffing the minds of the students with information without sequencing in presenting the ideas and realizing the relationships between the geographical phenomena, which led to weakening the level of achievements among the students and their inability to form the geographical concepts and their applications( Alshibly 1997,210). Which increases the difficulty of the subject, and also leads to create a knowledge gap between the existing concepts in their knowledge structure, and the concepts to be acquired by them, especially the abstract ones, which made the subject boring and rigid and unable to satisfy the knowledge needs of the students (Faor,1985,2010). And this was confirmed by the results of the group of studies like the study of (Alhasan 1987), study of Aljabur(1994), study of Alyasiry

(2005) that referred to the study of Geography is based on memorizing and recalling the information and facts instead of comprehending the concepts, generalizations, and theories, as a result to the above mentioned the researcher has come to the feeling of the existence of the problem in teaching Geography subject, and that problem doesn't concern the subject itself rather it is related to the methods of teaching it, and what confirms that problem to him is that his conducting of simple reconnaissance study for a number of preparatory schools in the province of Najaf and meeting through it with number of teachers of the subject of Geography, and they confirmed the inclination of the level of their students, the records of their marks also has confirmed this complain. The researcher attributed that to the use of the teaching methods that depends mostly on the effort of the teacher, hence it is necessary to use the modern strategies that make the learner active and effective in the class, as he is the source of the experiences and the information, and he is taught according to his own competencies. And based on that the researcher has wanted to attempt one of the teaching strategies that provide all that which may contribute to the increase in acquiring the geographical concepts that is (PDEODE strategy), and based on this the problem statement can be formulated through answering the following question: "Is there an impact to the PDEODE strategy on acquiring the geographical concepts in the fifth Literary branch grade students?"

## **(II) The significance and need of the Study:**

The world today witnesses a huge scientific and technological revolution and rapid changes in all the branches of knowledge, which has imparted great responsibilities on the education to prepare young people and providing them with what helps them to keep pace with this scientific progress, and keeping the educational process in its track and adapt with it, and by doing that it become a powerful organization that care for identifying and analyzing the educational problems that are related to all the aspects of the process of learning and human behavior with introducing the suitable solutions for all problems and changes (Alkhwalda et.al., 1995, 130-131) (Saraya, B, 11, 2007).

Geography is among the most sensitive study subjects, due to what is going on in the society from events, and problems that happen, for affecting the life of man and environment and what grows between them in form of interactions as well as the problems that arise from these two entities. (Imran, 2009: 16).

Geography has the role of providing the students with the fundamental collection of facts and concepts that contribute to form their scientific and cultural character and help them to understand the environment in its different natural and human aspects (Khuder, 2006:42).

Geographical concepts are one of the basics of geography, so attention must be paid to them because of their importance and effectiveness if the learners have a deep understanding of them as the structural unit of science (Allaqani et.al., 1990, 159) (Mreeziq et.al., 2008, 46).

(Taba 1967) sees that learning the concepts is the most important aspect of learning, as learning the facts and information is not merely elementary tools through which the concepts can be formed in students that in its total form represents that knowledge framework to be referred to when needed to organize curricula based on concepts. (Taba, 1967, p: 211)

(Broner) has referred that the process of constructing the concepts in the learner is one of the factors that affect the effectiveness of the learning process, the individual's possession of the structure of the cognitive subject enables him to act with knowledge and generate new knowledge from it relying on himself, precognition of new relationships between its factors, and for what it can employ its mind power, and increase the individual's capability to keep knowledge and use it when needed, and it works on providing motivation for learning (Aliti, 2004, 176)

The attention has recently diverted towards using styles that are more affective in the teaching process represented by the styles of learning that require the positivity and activities of learners, and it is a fundamental condition for the learning process whereas the job of the teacher is no longer restricted to providing the learners with the scientific facts but it crosses that to the development of the different skills and the training on the observation and concepts acquisition, directions and the styles of thinking on more particular extent. (Attallah, 2002, 5).

Using effective teaching strategies acquires the learner a self-learning that is real and effective, whereas he becomes able to face the new teaching attitudes in a better way than the past, and also able to obtain the new and suitable information for his learning in addition to evaluating and employing it in new life situations and using it to solve the educational problems facing it in the future (Al-Saliti, 2006, 6).

Among these strategies that has all these characteristics mentioned earlier is PDEODE strategy that through which the students are enabled to express the difficulties and the problems and provide for them the chance to face situations and the actual problems that they are trying hard

to solve through discussion and observation and interpretation and searching based on their previous information and in order to be able to build their knowledge in an image that has meaning and the role of the learner becomes as explorer and researcher of knowledge and responsible for his learning and the work of the teacher is to be an organizer, guide for the class environment of learning as well as a participant in running the learning and evaluating it which leads to encourage the students to make social and cooperative negotiations among students( Qutami,2013,388-389).

And for this strategy importance of teaching as it regards the students as the centre of the teaching process, and motivating the students to be enabled to craft acquiring the geographical concepts, and the researcher has chosen the preparatory stage for teaching Geography subject with this strategy for it enables the students to acquire the concepts and activating their previous experiences and integrating it with their new learning as well as that helps them to practice the logical thinking and reaching at the facts, conclusions and generalizations.

**From the above mentioned the importance of the study lies in the following:**

1. The importance of modern strategies that focus the learning process on the learner and make it an active and interactive individual during learning. One of these important strategies is PDEODE strategy.
2. The importance of preparatory school students as an important age and educational stage due to the distinctiveness and growth of students' educational and intellectual trends and the clarity of the goals they want to reach.
3. The importance of using PDEODE strategy, which is an integrated educational system.
4. The importance of teaching geographical concepts and making students a main focus in the acquisition process, depending on their own activities.
5. Raising the level of students' achievement through their acquisition of geographical concepts.
6. Enhancing students' confidence in geography by using PDEODE teaching strategy.
7. Contribute to transforming the teaching process into learning through the use of PDEODE strategy.

**(III)The Objective of the Study**

The current study aims at identifying the (effect of PDEODE's strategy in acquiring the geographical concepts among the fifth grade literary branch students in the subject of Geography.

#### **(IV) The Hypothesis of the Study**

There is no difference with a statistical significance at level (0.05) in acquiring the geographical concepts between the average marks of the students of the experimental group who study the Geography subject by using the PDEODE strategy, and the average of the marks of the students in the control group that study the same subject in the same traditional method.

#### **(V) The Limits of the Study**

1. Students of the fifth literary grade / in the General Directorate of Education in Najaf.
2. Geographical concepts contained in the fourth, fifth and sixth chapters of the geography book to be taught for the academic year 2017/2018.

Identification of Terms:

**The Strategy: it has many definitions among them are:**

#### **Zeitoun,2001**

- a collection of procedures that are already planned and directed towards the implementation of teaching in order to achieve certain objectives according to what the competencies that are available (Zeitoun,2001,279 ).

#### **Alhashimi& Taha,2008**

- It is a set of procedures and ideas that comprehensively address an area of human knowledge, in order to move towards goals and then develop appropriate evaluation methods to know the extent of their success and achievement of the goals that it set in advance( Alhashimi&Taha,2008,19)
- **Procedural definition:** It is a set of sequential procedures and activities carried out by the (teacher) in light of the available resources when teaching geographical concepts to the students of the research sample of the experimental group to achieve the goal of the strategy.

PDEODE's Strategy: has many definitions among them are the following

#### **Alfalah,2013**

- It is: a teaching plan based on a constructivist approach and includes a series of sequential procedures summarized in the following six stages (prediction, discussion, interpretation, observation, and interpretation). (Al-Falah, 2013, 260).

#### **Atiya, 2016**

- It is: a six-step strategy that includes a set of procedures based on constructivist learning that stresses the learner should build his knowledge himself and not receive it ready. (Atiya, 2016, 395).

- **The procedural definition of PDEODE strategy**, as: a set of teaching steps that facilitate classroom learning for the students of the experimental group, and it is based on six steps that begin (prediction, discussion, interpretation, observation, discussion, interpretation).

Acquisition:

#### **As a term: Defined by**

- 1- (Nashawati, 1984) as "What an individual has of the meaning, understanding, and application associated with a word (term), phrase or a specific process" (Nashwati, 1984, 76).

- 2- (Dictionary of Educational and Psychological Terms 2003): That "Increasing the individual's ideas or information, or teaching him new patterns of response, or changing his old response patterns, as it means a growth in learning skill or maturity or both. The acquired is a description of the non-innate characteristics and responses that a person learns with experience and practice" (Shehata and Al-Najar, 2003, 57).

#### **Procedural definition of (acquisition):**

It is the ability of the fifth grade literary students from the research sample to define, distinguish and apply the geographical concepts included in the chapters subject to the research experiment, and it is measured by the degrees they obtain in the acquisition test that is applied at the end of the research experience.

The Concept: has many definitions among them are the following:

- 1- (Jabir, 2005) that "An abstract mental conception that forms a symbol, a word, or a semi-sentence, and is used to denote a specific object, topic, or scientific phenomenon, which is formed as a result of linking facts to each other and finding the existing relationships between them" (Jabir, 2005, 332).

2-(Abu Riash,2007) that

"A collection of subjects, symbols, elements, or incidents that combine common distinguishing characteristics" (Abu Riash, 2007, 81).

**Procedural definition of (the concept):**

It is an abstract mental imagination that gives a name or an expression to denote a set of characteristics that characterize a natural or human geographical phenomenon and included in the material subject to the research experiment, which is the first three chapters of a geography book for the fifth grade literary.

**The Second Chapter: Theoretical Framework Review of Literature**

(I): The emergence of PDEODE's strategy:It is the strategy of PDEODE proposed by the scientist Savander and Kolari, one of the constructivist theory theorists and the founder of its steps, who called for attention to the ideas of constructivist theory, believing in its importance in helping students in classroom learning (savendr and Kolari 2003, 4).

(II) The Concept of PDEODE Strategy:

It is an important teaching strategy that supports discussion and divergent opinions among students, and it consists of six stages: prediction, discussion, interpretation, observation, discussion, and interpretation, and helps students understand life situations. Savendr and Kolari, 2003:5))

**PDEODE strategy includes the following steps:**

- 1- Prediction: in this stage the teacher introduces a phenomenon about the concept that is required to be taught later he allows the students the chance to predict the result of the phenomenon or the presented problem in an individual way and justifying these predictions before any educational activities or events.
- 2- Discussion: At this stage, students have the opportunity to work in small groups to discuss their ideas, share experiences, and meditate together.
- 3- Interpretation: At this stage, students come to a cooperative solution about the phenomenon and share their findings with other groups through group discussion for the whole class.

- 4- Observation: In this stage, students test their ideas and opinions about the phenomenon by conducting activities and experiments in groups and recording observations.
- 5- Discussion: In this stage, students modify their predictions through actual observation in the previous step. Here, students are required to practice the skills of analysis, comparison, and criticism of their colleagues in the groups.
- 6- Interpretation: In this stage, students confront all the contradictions that exist between observations and predictions by resolving the contradictions within their beliefs (conceptual change) (Al-Salamat, 2012, 246)

### **(III) The Hypotheses of the PDEODE's Strategy**

- 1- Learning by using tasks enables the student to interpret the phenomena that are related to the concept that is required to learn.
- 2- The students who carry substitute ideas about the subject show conceptual change after learning with PDEODE's strategy.
- 3- The success of PDEODE's strategy due to its ability to help the students to evaluate their previous knowledge, a re-examining their ideas within their small groups inside the class.
- 4- The use of PDEODE's strategy in teaching works on modifying the students' ideas towards the scientific conceptual and improves their new knowledge through the discussions that appears after observations (Qatami, 2013, 284).

### **(VI) The Characteristics of PDEODE's Strategy:**

- 1- Availability of the appropriate atmosphere and diversity of visions and ideas in teaching.
- 2- It helps the students to form the meaning of what they learn in the situations they face in their lives through the students' understanding of the tasks involved.
- 3- Increases the activity of the students which enable them to solve the problems that face them in their daily life.
- 4- It assists the students in their daily situations, as well as investigating and discussing their ideas. (Atiya, 2016, 397)

- 5- Contribute to the reform of the educational system by upgrading the role of the student and his ways of thinking and by preparing scientific cadres to take an effective impact in society.
- 6- It makes the teaching process more interesting and exciting for students.
- 7- Increasing students' motivation and developing a spirit of perseverance and problem solving.
- 8- It is appropriate to the abilities of the learners and is closely related to their daily life and needs.
- 9- Make the student the centre of the educational process.
- 10-The strategy achieves saving time and effort. (Kolari et., 2004: 58)

**(IV) The Role of the Student in the PDEODE's Strategy:** The role of the student in this strategy is as follows:

- 1-The students try to answer the questions that are related to the concept that the teacher present to them at the beginning of the teaching process.
- 2-The student justifies his answer to the questions related to the concept by knowing the extent of his persuasion in it.
- 3-The student discusses his classmates in their answers to the questions related to the concept.
- 4-The student tries to help his classmates by eliminating the mistaken answers.
- 5- The student compares his answer to the questions related to the concept with his observation by performing the activities directed to him by the teacher. (Al-Asmar, 2014, 21).
6. It makes the student the centre of the educational process and the teacher who guides and directs learning.
7. It makes the student debate, explain, compare, predict, observe and hypothesise, and investigate different points of view instead of listening, reading and doing routine work.
8. Have students build knowledge socially through dialogue with others.
9. It makes students create knowledge for themselves (Qatami, 2013, 291).

The researcher concludes that the impact of students on learning is the main focus of PDEODE's strategy by answering the questions raised for discussion, conducting activities, listening to different viewpoints and finding solutions to them.

### **Review of Literature**

**Studyby Alkhateeb(2012)**

The study was conducted in Jordan and the study aimed to identify the effect of the PDEODE strategy based on the constructivist approach in mathematical thinking and comprehension and retention of the mathematical concepts among the tenth grade students in mathematics. The researcher chose the appropriate experimental design and rewarded the students in the variables of chronological age, academic achievement of parents, and mathematical thinking. The study sample as made of 100 students from the 10<sup>th</sup> basic grade. The research tool is represented by the testing of the mathematical thinking and comprehension and retention of the mathematical concepts, the researcher has used the statistical means like the T.Test, Chi-square and Person correlation, and the coefficient of difficulty and strength to distinguish the effectiveness of alternatives. The results showed that the students of the experimental group outperformed the students of the control group in a test in mathematical thinking, understanding concepts and retention. (Al-Khatib, 2012, ZS).

#### **Study by Tanous (2013)**

The study was conducted in Jordan and it aimed to identify the effect of using a teaching PDEODE strategy based on the constructivist approach in understanding and retaining scientific concepts and acquiring mental processes in the girls students of the basic stage, the researcher has chosen the appropriate experimental design for this. The researcher made equality between the female students in the variables of the chronological age of the students, the academic achievement of the parents, the tribal test, the understanding and retention of scientific concepts and the acquisition of mental processes. The research sample consisted of 69 female students of the second grade. The researcher built a test, understand and retain scientific concepts to acquire mental processes. The researcher used the statistical methods chi-squares, the t-test for two independent samples + AlfaCronbach + Pearson correlation, the results showed that the students of the experimental group outperformed the students of the control group in the test of understanding and retaining scientific concepts and acquiring mental processes after. (Tanous, 2013, RS)

#### **A study by Mohammad (2014)**

This study was conducted in the Kingdom of Saudi Arabia and aimed to study the effectiveness of the strategy with six dimensions for teaching sciences in achievement and development of

skills beyond knowledge in students of the first intermediate school grade and the researcher has chosen the appropriate experimental design, and made equality between the students in the variables of the chronic age, educational achievement of the parents. The sample of the study consisted of 60 students of the first intermediate grade. The researcher built the achievement test of metacognitive skills, the t-test, and the researcher used the statistical means chi-square + Pearson correlation, and the coefficient of difficulty and discriminatory power, the effectiveness of alternatives. (Mohammed, 2014, RS)

### **Altimimi(2016)**

The study was conducted in Iraq and aimed to identify the effect of PDEODE's strategy in correcting the mistaken concepts and its retention among students of the fifth literary grade in the subject of history. The researcher chose the appropriate experimental design. The researcher made equality between the students in the variables of chronological age, the academic achievement of parents. The research sample consisted of 60 fifth-grade literary students, and the researcher built a test to correct mistaken concepts and retain them. The researcher used the statistical means t-test + chi-square + Pearson's correlation, and the coefficient of difficulty and differentiating power, the effectiveness of alternatives. The results showed that the students of the experimental group outperformed the students of the control group in the test. Correct and retain mistaken concepts. (Al-Tamimi, 2016, RS)

Aspects of benefit from previous studies:

- 1- The researcher benefited from looking at previous studies in the equivalence procedures between the two research groups, formulating behavioral objectives and experimental plans, and building a test tool for syntactic skills.
- 2- The researcher is guided to the resources related to PDEODE's strategy and make use of them.
- 3- The researcher benefited from the previous studies in choosing the experimental appropriate design for conduct his study, and the methods of choosing the sample.
- 4- Seeing the appropriate statistical means for the purpose of designing the current study for data analysis.

### **The Third Section**

Research Methodology and its Procedures

The researcher followed the procedures of the experimental method, which included choosing the appropriate experimental design. Determining the research community, selecting the sample, equivalence measures between the two groups, a presentation of the research requirements and tools, how to apply them, and the statistical methods used to analyse data, and the following is an overview of these procedures:

**(I) The Experimental Design:**

The accurate choice of the appropriate experimental design is an important thing, as it guarantees for the researcher the accuracy of the answer to the hypotheses of the study, and verifying the validity of its findings (Gharibeh, 1981, 20-21).

And in order to achieve that the researcher has depended on the design of the two groups the experimental and the control with partial control as in the following table:

**Figure(1) The Experimental Design**

<b>Group</b>	<b>The Independent Variable</b>	<b>The Dependant Variable</b>
<b>Experimental</b>	PDEODE	Acquisition of the Geographical Concepts
<b>Control</b>	Regular Method	

The experimental group, in this type of design, means the group whose students are exposed to the independent variable (PDEODE's strategy) when studying a geographic subject, and the control group is the group whose students are not exposed to the independent variable (PDEODE's strategy) when studying Geography subject, as for the acquisition of geographical concepts, it is the dependent variable that is measured by the geographical concepts acquisition test, which is prepared by the researcher for research purposes and applied at the end of the research experiment.

**(II): The Community of the Research and its Sample:**

**1- The Community of the Research:**

It refers to all the individuals who carry the apparent data that is available for study, it may be said that the community is collection of units of the research that is required to give the data (Dawood & Abdulrahman, 1990, 66)

The community of the fifth grade literary branch students /Morning study that is part of the General Directorate of Education in AnnjafAlashraf for the academic year (2017-2018)

## 2- Sample of the Study:

The researcher has visited the concerned schools that was determined in a random withdrawal that is Alkhaurnaqa preparatory school for Boys and the researcher that the school has three halls of study belong to the fifth grade students of the literary branch(A,B,C)Accordingly, two divisions were chosen from them using simple random sampling, and they are Division (B) to represent the experimental group and Division (C) to represent the control group,The number of students in the two research groups reached (69) students, with a total of (69) students in the research sample, of which (34) students were in the experimental group and (35) students were in the control group, as shown in the following table (1).

**Table (1)**

**The number of the two groups in the Experimental and control before exclusion and after it.**

<b>The Group</b>	<b>Section</b>	<b>The Number of female Students before the exclusion</b>	<b>The Number of the Female Students After the Exclusion</b>
<b>The experimental</b>	<b>B</b>	<b>35</b>	<b>34</b>
<b>The Control</b>	<b>C</b>	<b>35</b>	<b>35</b>
<b>Total</b>		<b>70</b>	<b>69</b>

### (III):: Equality of the two groups of the research:

To achieve harmony between the two groups of the study, the researcher has tended before starting the experiment to statistically equalize the two groups in some variables that he sees as effective on the results of the experiment those are represented by the following:

1-The chronical Age.

2-The marks of Geography subject in the final examination for the fourth grade literary branch in the academic year of (2017-2018).

3- Intelligence.

**1- The Chronical Age(In months):**

After obtaining the ages of the students from the records of the school and calculating the averages of the ages of the students in the two groups, and the standard deviations, the T.Test was used for two independent samples to know the statistical differences whereas it appears that the average for the experimental group(201.14) and standard deviation of (5.801) meanwhile the average of the control group reaches (202.9) and standard deviation (3.810) and it appears that the difference doesn't have statistical significance in a level of (0.05), as the calculated t-value (1.315) was smaller than the tabular t-value (2) and with a degree of freedom (67),this indicated that the two groups the experimental and the control are statistically equalized in the chronical age and the table(2) illustrates that.

**Table (2)**  
**The Equivalence in the Chronical Age calculated in Months**

S.No	Group	Number	Average	Standard Deviation	Degree of Freedom	T.Value		Sig of(0.05)
						Calculated	Tabulated	
1.	Experimental	34	201.14	5.801	67	1.15	2	Non Sig.
2.	Control	35	202.69	3.810				

**3-The marks of the previous achievement in the Geography subject:**

The researcher obtained the marks of previous achievement in the geography subject for the students of the two research groups from the record of grades, which belong to the fifth grade students for the academic year (2016-2017),It is clear from Table (3) that the students of the two research groups are statistically equivalent in terms of achievement in the geography of

continents for the previous academic year, as the data results using the t-test for two independent samples (t-test) showed that the calculated t-value amounted to (1,250), which is smaller than the tabular T-table of the amount (2) at the level of significance (0.05) and the degree of freedom (67).

**Table(3)**  
**Marks of the Previous Achievement in the Geography subject**

S.No	Group	Number	Average	Standard Deviation	Degree of Freedom	T.Value		Sig of(0.05)
						Calculated	Tabulated	
1.	Experimental	34	79.14	9.309	67	1.250	2	Non Sig.
2.	Control	35	82.03	9.988				

**3-Intelligence:** For the purpose of verifying the equivalence of the two research groups in the intelligence variable, the researcher used the Raven test for the standardized successive matrices metered of the Iraqi environment (Al-Dabagh et al., 1983, 60). And when those data were statistically processed using the t-test for two independent samples, the results showed that there is no statistically significant difference between the two research groups in the intelligence variable, as the calculated t-value reached (1.287) less than the tabular t-value of (2) at the level of significance (0.05). , and with a degree of freedom (67), and thus the two research groups are equivalent in the intelligence variable as shown in Table (4).

**Table(4)**  
**Equivalence Between the two groups in Intelligence Test(Raven)**

S.No	Group	Number	Average	Standard	T.Value

				Deviation	Degree of Freedom	Calculated	Tabulated	Sig of(0.05)
1.	Experimental	34	41.06	5.218	67	1.278	2	Non Sig.
2.	Control	35	39.26	6.248				

**(IV):Adjust Extraneous Variables:**

Despite the statistical equivalence between the two research groups in six variables that the researcher believes can affect the dependent variable with the independent variable, the researcher tried as much as possible to avoid the impact of some extraneous factors in the course of the experiment,through the selection of the sample members, the measurement tool, maturity, associated accidents, experimental extinction, timetable of the classes and the duration of the experiment.

**(V): The Requirements of the Research:**

**1- Determining the Scientific Material:**

The researcher has specified the material that he would teach to the two groups in this research during the time of the experiment,which included the fourth, fifth, and sixth chapters from the book of Geography for the fifth grade literary.

**2-Determining the Geographical Concepts:**

After the researcher identified the scientific material, he analysed the topics, and determined the geographical concepts that exist within the content of those topics, for the purpose of achieving the goal of the research, guided by the three processes that he adopted, namely (defining the concept, distinguishing it, and applying it).As standards and means that should be available in order to analyze the content conceptually, and then prepare the behavioral objectives to be achieved on the processes of its acquisition. The researcher presented all the geographical concepts that are consistent with the three processes (definition, discrimination, application), which are (20) geographical concepts, to a group of experts specialized in geography, teaching

methods, measurement and evaluation, and some appropriate modifications were made to a number of them.

#### **4-Behavioral Objectives:**

Behavioral objectives are carefully written statements that explain to students what they can do after completing the study of a particular subject or unit of study. It helps in evaluating the educational process, and effectively contributes to defining the type of activities required to achieve successful learning, and it serves as criteria that can be used to choose the appropriate teaching methods and teaching aids, and they are observable and measurable (Al-Laqani and Abu Sunina, 1999, 91-94). After having a look at the general goals by the researcher, he put those goals into practice by translating them into precise behavioral goals, consistent with the processes of acquiring each geographical concept (distinction, and application), so for each concept there are three goals, each goal representing a level. Since the number of specific geographical concepts is (20), the number of behavioral goals has become (60), and for the purpose of verifying the validity of the formulated goals and their conformity with the concepts, a questionnaire was distributed that includes a list of concepts and the corresponding behavioral goals to verify their validity, the list of behavioral goals was approved by the experts, except for some minor modifications in the formulation of some of them, which were taken and corrected to bring them into their final form.

#### **5-Preparing Teaching Plans:**

The teaching plan is defined as preconceptions of the study situations and procedures undertaken by the teacher and his students to achieve certain educational goals (Al-Amin et al., 1992, 133). Based on the foregoing, teaching plans were prepared for the implementation of the experiment as follows:

Models of teaching plans were prepared daily using the PDEODE's strategy and the usual method, and their number reached (17) plans, which were presented to a group of specialists and experts to find out its validity in teaching the two research groups, and it was modified according to their opinions.

#### **(VI): Preparing the Test:**

##### **Preparing the test of acquiring the geographical concepts:**

1-The test is defined as an organized procedure to identify what the students have learnt (Milhim, 2002, 194), as the current research requires constructing a test in acquiring the

concepts, and the researcher has built it based on the concepts that were determined and the behavioural purposes that were formulated, hence, the researcher has followed several steps in preparing and applying this test.

1- Drafting the Items of the Test: based on that the researcher has prepared a type of test of multiple choice, consist of (60) testing item type of multiple choice, whereas he paid attention to make sure that each concept has three items that It measures the mental processes of acquiring it (defining, distinguishing, applying).

2- Validity of the Test: For the purpose of ascertaining the extent of the test's validity, the researcher relied on two types of validity, which are the apparent honesty which (Abu Libdeh 1985) refers to as the honesty that indicates the general appearance of the test as a means of measurement, that is, it indicates the extent to which the test is appropriate for students and the clarity of its instructions (Abu Libdeh, 1985, 239), The other type is the validity of the content. To achieve this, the researcher presented the test items to a group of experts in teaching methods, measurement, evaluation and geography, in order to explore their views on the validity of the test items in measuring the goal for which it was designed, which is the acquisition of geographical concepts, and in the light of their opinions and observations, some modifications were made and were not deleted any paragraph of it.

As for concerning the validity of the content was attained through holding comparison between the opinions of the experts that were offered the test in its first draft, along with the list of the of the geographical concepts and the objectives that it represent according to the operations that are determined for giving their opinions about the extent of the validity of the test regarding its coverage to the geographical concepts and the levels of the targeted behavioural purposes that are (60) behavioural goals that were covered with (60) testing items for considering their opinions and modify whatever needed to be modified, the test has gain the admiration of all the experts and hence, the validity of the content is achieved.

3- The Application of the Test on a survey Sample:

4- For the purpose of ascertaining and determining the psychometric characteristics of the test, the test was applied to an exploratory sample of Enad Ghazwan Preparatory School for Boys, and their number reached (100) students, and the time taken to answer the test was (50)

## **5. Analysis of the test items:**

### **a- Coefficient of difficulty of item:**

The items whose difficulty coefficient ranges between (0.20- 0.80) are within the acceptable limits, while the items outside this range require modification, replacement or deletion (Oudah and Malkawi, 1999, 129), and after calculating the difficulty coefficient of the test items, it was found that it ranges ( 38-66)

### **b-The Discriminatory Force of the Items**

(Eble 1972) sees that the items of the test are considered as good whereas the its distinguishing power (0.30)(Eble,1972,p.66).

After finding the power of discrimination of each of the test items, it was found that it ranges between (0.31 - 0.68), so the researcher found that all the test items are valid and have a good discriminatory ability, so he kept them as they are.

## **6-Stability of the Test:**

For counting the stability of the current test of concepts acquiring the researcher has used halftone fragmentation method (Allam, 2007, 235).And based on that the test was divided into two parts, odd and even items, later the equation of (Person) was used to calculate the correlation coefficient between the (even and odd) parts that reached(0.88), when applying the equation of Spearman-Brown the stability coefficient has become(0.93)

## **(VII): Application of the Experiment:**

### **1-Before Application of the Experiment:**

Conducting parity operations between the two research groups in the variables mentioned previously and organizing the weekly schedule in agreement with the school administration by allocating Wednesday and Thursday at a rate of two classes per week for each section. Preparing teaching plans for the concepts within the study subject for the research experience of a geography subject for both the experimental and control groups.

### **2-The Actual Application of the Experiment:**

- a) The researcher started applying the experiment in 22-2-2018 and continued applying the experiment till 23-4-2018.
- b) The researcher himself has taught the control group(section C) the study subject in accordance with the traditional method, and the experimental group(SectionB) according to the PDEODE's strategy.

c) The period of the experiment has lasted for full semester, and in 30-4-2018 the researcher has decided a date for test of geography concepts acquisition for both of the groups basically as an official test, and was applied in one time with assistance from one of the mates.

#### **(VIII): the Statistical Tools:**

The researcher has used the statistical tools that are listed below in the procedures of his research, analysis of his results.

- 1- T-Test for two independent samples: The researcher used this method to find out the significance of the statistical differences between the two research groups in the statistical equivalence and in the analysis of the results.
- 2- Difficulty Coefficient: This method was used to calculate the difficulty coefficients for the items of geographic concepts acquisition test.
- 3- Discrimination power coefficient: The researcher used this method to find the discriminatory power coefficients for the test items.
- 4- Pearson Correlation Coefficient: The researcher used this method to calculate the test reliability coefficient by the split-half method.
- 5- Spearman-Brown coefficient: The researcher used this equation to correct the test reliability coefficient.

6-

#### **(I) Results**

##### **The Results and Their Interpretations:**

This section of the study includes a presentation of the results and interpretation of them in the light of the procedures that are referred to in the third section, to know (The effect of PDEODE's strategy in developing the syntactic skills in the female students of the preparatory school).

##### **1- Presentation of Results:**

After that the researcher has find the average of the marks of the test of concepts for the research groups, whereas the display of the results will be according to the null hypothesis as follows:

##### **The Research Hypothesis:**

There is no statistical significance at level of (0.05, 0) in the acquisition of the geographic concepts between the average of the marks of the students in the fifth grade of the literary branch preparatory for the experimental group who study the subject of geography with the PDEODE's

strategy and an average of the marks of the control group of students who study with the regular method.

By adopting the t-test for two independent samples to find out the significance of the statistical difference for the post-test, it appeared that the arithmetic mean of the experimental group was (39.50), and the standard deviation (5.727), while the arithmetic mean of the control group was (30.26) and the standard deviation (6.284).As it turned out that the difference is statistically significant at the level (0.05), as the calculated T-value was (4,309) degrees, greater than the tabular T-value (2) degrees, and with a freedom degree (67) degrees,therefore, it appeared that the students of the experimental group outperformed the students of the control group in the test of acquiring the concepts of geography. Therefore, the null hypothesis was rejected, and the alternative was accepted, and Table (5) illustrates this.

**Table(5)**

**The result of the t-test between the post-test scores of the experimental and control group students, the concept acquisition test**

Group	Number of the Individual s of the sample	Arithmeti c	Standar d Deviatio n	Freedo m Degree	T. Value		Sig level (0.05)
					Calculat e	Tabula r	
Experiment al	34	39.50	5.27	67	4.39	2	Statistic al function
Control	35	30.26	6.284				

**(II) The Interpretation of the results**

After displaying the results the researcher may interpret the results of the research as follows:

1. The PDEODE's strategy is one of the constructivist theory strategies that make the student the centre of the educational process, thus reducing the amount of stress he faces during his studies.

2. PDEODE's strategy develops the student's abilities, and helps students develop their classroom talents through its stages that lead to constructive active learning.
3. The strategy of PDEODE is more effective than the followed traditional method of teaching Geography, because it takes into account the mental abilities of students in education.
4. PDEODE's strategy helps students to sequence their ideas by answering the test items, and this is evident by increasing the average scores of the experimental group in the concepts acquisition test.
5. PDEODE's strategy increases students' motivation through their interaction with the lesson, and this is evident for the students of the experimental group in increasing their averages in the concepts acquisition test.

### **(III): Conclusions**

Throughout the result of this research the researchers has concluded the following:

- 1-The experimental group has outperformed the control group students in the test of concepts acquisition.
- 2- An increase in the development of the scores of the experimental group students in the post-test at the expense of the scores of the control group students on the concepts acquisition test.
- 3- The PDEODE's strategy motivates the students to reach at a higher achievement and enables the educational material through continuous interaction between students in the classroom and giving them the opportunity to teach.
- 4- Increasing students' motivation when participating in the lesson by using the PDEODE's strategy, which works to attract students' attention when answering the test of acquiring concepts in geography.
- 5- Increases the possibility of cognitive readiness towards the subject by providing the opportunity for students to prepare for learning between the researcher and the students themselves.

**( IV) Recommendations : In the light of the results of this study the researcher recommends the following:**

1. Benefiting from the use of PDEODE's strategy in geography for students of the preparatory stage for the fifth literary grade.

2. Prepare to create an appropriate classroom environment when the teacher uses the PDEODE's strategy.
3. The necessity of preparing training courses for teachers of geography and teachers in the use of modern strategies based on the constructivist theory in teaching, including PDEODE's six-step strategy.

**(V): Suggestions: in the light of the results of the study the researcher suggests conducting new studies that complement this study as follows:**

1. Conducting a study similar to this study in other study subjects
2. Conducting a balancing study between PDEODE's strategy and other active learning strategies.
- 3- Conducting a study identifying the impact of PDEODE's strategy on other variables such as achievement and retention.
4. Conducting a study similar to the current study in other study variables such as the intermediate and primary levels

### **References**

- Abu Riash, Hussein Mohammed (2007) Cognitive Education. Dar Almaseera. Amman.
- Alamin, Shakir Mahmood et al. (1992) Principles of Teaching Social Subjects. Dar Alhikma for Publication and Press. Baghdad.
- Jaber, Waleed Ahmed et al. (2005). The General Methods of Teaching. T2, Dar Alfikr. Amman.
- Al-Jabr, Suleiman bin Muhammad (1994) The Reality of Teaching Geography in Saudi Secondary Schools from the Point of View of Teachers and Educational Mentors, Risala Al-Khaleej Al-Arabi Magazine, No. (50), year (14)
- Al-Hasan, Muhammad Ibrahim Taher (1987) Problems of Teaching Geography in Middle School from the Point of View of its Teachers and Their Proposed Solutions, Unpublished Master's Thesis, University of Baghdad, College of Education - Ibn Rushd.
- Al-Khawaldeh, Muhammad Mahmoud. (2007) The Foundations of Building Educational Curricula, Dar Al-Maseera. Amman.
- Aldabagh, Fakri, et al. (1983) The Iraqi Standard Progressive Matrices Raven Test. University of Mosul. Ministry of Higher Education and Scientific Research.

- Al-Zoba'i, Abdul-Jalil, & Muhammad Ahmad Al-Ghannam.(1981) Research Methods in Education, Baghdad University Press, Iraq.
- Al-Shibli, Ahmed Ibrahim(1997).Teaching Geography in the Stages of General Education.Cairo: Al-Dar Al-Arabiya Book Library.
- Shehata, Hussein, & Zainab Al-Najjar, (2003) A Dictionary of Educational and Psychological Terms. the Egyptian Lebanese House.
- Al-Titi, Muhammad Hamad( 2004) The cognitive structure for Acquiring Concepts.Amman:Dar Al-Amal..
- AbdulHakim, Mohamed Sobhi ( 1996) Studies in General Geography.Cairo:Arab Thought House.
- Abdullah, Hussam.(2003) Methods of Teaching Geography.Amman: Osama House for Publishing and Distribution.
- Atallah, Michel Kamel( 2002). Methods and Methods of Teaching Science, 2nd Edition.Amman: Dar Al Maseera.
- Allam, Salah El-Din Mahmoud.(2007). Educational Measurement and Evaluation.Amman: 1st Edition, Dar Al-Maseera.
- Fathi, Hassan, Malkawi (1999) Measurement and Evaluation in the Study Process.3rdEdition.Amman: Dar Al-Amal.
- Gharaibeh, Fawzi, and others(1981) Methods of Scientific Research in the Social and Human Sciences, 2nd Edition.Amman: Dar Al-Thiqafor Publishing and Distribution.
- Faour, Ali. (1985) Teaching Geography in Lebanon, Opinions and Suggestions, Al-Bahith Magazine, Lebanon - Beirut, No. (4).
- Al-Laqani, Ahmad Husayn, upon Thareth (1990). Changing Skill Studies, Part 1, The Pain of Books, Biography.
- Al-Laqani, and Abdul-Jawad Abu Sneina, 1999, Methods of Teaching Social Studies. Amman: Dar Althaqafa.
- Al-Yasiri, YahyaYounis Mahdi. (2005) Evaluation of the Achievement of Geographical Concepts and Its Relationship to the Trend Towards Specialization Among Students of Basic Education Faculties - Al-Mustansiriya University, an Unpublished Master's Thesis, College of Basic Education.
- Al-Asmar, Jassim Ali. (2014) Modern Teaching Strategies.Amman, Jordan:Dar Al-Masirafor Publishing and Distribution.

- Al-Tamimi, Walid Hamed (2016) The effect of the "PDEODE" Strategy in Correcting and Retaining Erroneous Concepts among Students of the Literary Fifth Grade in the Subject of History, (Unpublished Master's thesis), University of Diyala, College of Education for Human Sciences.
- Al-Khatib, Muhammad Ali. ( 2012). The Impact of a Teaching Strategy (pdeode) Based on the Constructivist Approach in Mathematical Thinking and Understanding and Retaining Mathematical Concepts for Tenth Grade Students, Journal of Educational Sciences, Issue 39 (1), 241-257. Jordan.
- Zeitoun, Hassan Hussein. (2001). Teaching Design, 2nd Edition. Cairo, Egypt: World of Books.
- Al-Siliti, Firas. ( 2006). Learning and Teaching Strategies, Theory and Application. Irbid, Jordan: Modern Book World for Publishing and Distribution.
- Tanous, Intisar George. (2013). The Effect of a Teaching Strategy (PDEODE) Based on the Constructivist Approach in Understanding and Retaining Scientific Concepts and Acquiring Scientific Processes among Basic Stage Students in the Light of their Control, Unpublished master's thesis, University of Jordan. Jordan.
- Al-Falah, Fakhri Ali. (2013) The Effect of Using the PDEODE's Strategy Based on the Principles of Constructivist Theory on the Achievement of Jordanian Basic Stage Students in Chemistry in Improving their Reflective Thinking and Performing Skills, (Unpublished PhD. thesis), College of Arts and Educational Studies - International Islamic Sciences University, Palestine.
- Qatami, Yousef. (2013) Cognitive Learning and Teaching Strategies. Amman, Jordan: Dar Al Masirah for Publishing and Distribution.
- Muhammad, Ahmed. (2014) The Effectiveness of the Six-Dimensional Strategy for Teaching Science in the Achievement and Development of Metacognitive Skills for First Intermediate Grade Students, (Unpublished Master's Thesis). Saudi Arabia.
- Al-Hashimi, Abdul Rahman, Taha Ali Hussein. (2009). Modern Strategies in the Art of Teaching, 1st Edition. Amman, Jordan: Dar Al-Shorouk for Publishing and Distribution.
- Costu, B. and et, (2012) Investigating Effectiveness of a Poe-based Teaching Activity on Understanding of Condensation. Eurasia Journal of Mathematics, Science & Technology Education. 47-67. (2012).
- Costu, B. (2008), Learning science through the PDEODE Teaching Strategy: Helping students, and technology Education, 4(1), 3-9.

Kolari, s, &Savander, c, (2003).promoting the conceptual understanding of engineering students through visualization.

Koari, s, and et al.(2004), Improving student Learning in an Environmental Engineering Education.

Kolari, s, &Savarnder-Ranne, c, (2003) "promoting the Conceptual understanding of engineering students through visualization"Global Journal of Engineering educating 7(2).189-199.

\*Ebel , (1972) R-L – Essentials of Educational Measurement Englewood cliffs , New jersey .

\*Taba , Hilda , 1967 , Teachers Handbook for Elementary Social studies Addison, Wesley publishing . co ., inc , peading Massachusetts .