Journal of el hikma for philosophical studies
Issn : 2353-0499Eissn :2602-5264
Volume: 14 / N°: 02(2026), p:817-829

EXPLORATORY LEARNING STRATEGY TO RAISE ACADEMIC ACHIEEMENT

إستراتيجية التعلم الاستكشافي في الرفع من التحصيل الدراسي.

MOHAND AKLI BOUZID[1], HANANE BECHTA[2]

[1] **Researcher's Name and Surname: Mohamed Akli Bouzid Rank: 6th Year PhD Student**

Specialization: Educational Engineering

Institution: Mohamed Seddik Ben Yahia University, Jijel 18000 - Algeria

Mobile: 0696/08/18/33

[1]PSYCHOLOGY AND SOCIAL ISSUES LABORATORY JIJEL

Email:mohammedaklibzd@gmail.com

[2] **Professor Hanan Bechta – Professor of Higher Education – Mohamed Seddik Ben Yahia University, Jijel, Algeria.**

Email: Hananbechta@yahoo.com

Received: 25/10/2025 Accepted: 04/05/2025 Published:01/06/2026

Abstract:

The martyr of recent years has been a widening gap between the educational needs of students and the professional capabilities of teachers to keep pace wit rapid cultural changes, as the need to employ many modern educational methods, methods and strategies increases.

The exploratory learning strategy affects academic achievement to a normal degree. it also positively affects students and enables deeper and more sustainable learning to be taught.

Therefore, this study aimed to reveal The exploratory learning strategy and how it as an effective and influential educational tool to help the student think, learn and progress on all human, intellectual and social levels in order to understand and know educational issues and problems is the low level of academic achievement that students suffer from In some resources basic.

The exploratory learning strategy method aims to change the student's way of thinking, as it necessitates paying attention to the contents of the academic programs and teaching and learning methods, so that the learner's creative energies are unleashed and the moves out of the culture of receiving information to the culture of constructing information ,processing it, and transforming it into knowledge, which is represented by the discovery of related relationships ad special phenomena in teaching the subject of scientific education and technology.

The exploratory learning strategy affects the academic achievement of the student with a high degree.

The recitation strategy affects the academic achievement to a moderate degree, as the teacher transfers the knowledge without having a role in reaching and discovering it, which leads to a low level of student's achievement and their reluctance to study the subjects as well it also limits the development of their innovative thinking abilities because the teacher uses the traditional educational strategy in the prevailing educational institutions. He still relies on traditional methods of imitation and learning that belittle the student and make him a passive

dependent learner who waits for a long period of participation, and at the time that the teacher sets according to what he sees, and this may lead to suppressing his talents and extingshing his creative flame.

KEY WORDS: Exploratory learning, academic achievement

ملخص

شهدت السنوات الأخيرة اتساعا في الفجوة بين احتياجات الطلاب التعليمية –التربوية ،وبين قدرات المعلمين المهنية ،على مواكبة التغيرات الحضارية السريعة ،حيث تزداد الحاجة إلى توظيف العديد من الوسائل والأساليب والاستراتيجيات التربوية الحديثة .

لذا هدفت هذه الدراسة إلى لكشف عن إستراتيجية التعلم الاستكشافي وكيف تؤثر في الرفع من التحصيل الدراسي وطريقة توظيفها كأداة تربوية فعالة ومؤثرة ،لمساعدة الطالب على التفكير والتعلم والتقدم على جميع الأصعدة الإنسانية والفكرية والاجتماعية،من اجل فهم ومعرفة القضايا والمشكلات التربوية ،ومن ضمن هذه المشكلات انخفاض مستوى التحصيل الدراسي الذي يعاني منه التلاميذ في بعض المواد الأساسية .

إن إستراتيجية التعلم الاستكشافي تؤثر على التحصيل الدراسي بدرجة عالية كما أنها تؤثر ايجابيا على التلاميذ وتمكنهم من تعلم أكثر عمقا وأكثر استدامة .

تهدف طريقة إستراتيجية التعلم الاستكشافي إلى تغيير طريقة تفكير التلميذ كما استلزم ذلك الاهتمام بمضامين البرامج الدراسية وأساليب التعليم والتعلم حتى يتم إطلاق طاقات الإبداع عند المتعلم والخروج من ثقافة تلقي المعلومات إلى ثقافة بناء المعلومات ومعالجتها وتحويلها إلى معرفة تتمثل في اكتشاف علاقات ومتعلقات وظواهر خاصة في تدريس مادة التربية العلمية والتكنولوجية .

ولقد حققت دراسة التدريس باستخدام إستراتيجية التعلم الاستكشافي نتائج من بينها:

-إستراتيجية التعلم الاستكشافي تؤثر في التحصيل الدراسي للتلاميذ بدرجة عالية .

- إستراتجية الإلقاء تؤثر على التحصيل الدراسي بدرجة متوسطة .

حيث يقوم المعلم بنقل المعرفة وما على التلاميذ إلا استقبال هذه المعرفة دون أن يكون لهم دور في التوصيل إليها واكتشافها ،مما يؤدي لتدني مستوى تحصيل التلاميذ وعزوفهم عن دراسة الموضوعات ،كذلك يحد من تنمية قدرات التفكير ألابتكاري لديهم .بسبب استخدام المعلم استراتجيات تعليمية تقليدية,فالاتجاه التربوي السائد في العديد من المؤسسات التربية الحالية ،مازال يعتمد على طرق التلقين والتعليم التقليدية ،التي تقلل من شأن الطالب ،وتصنع منه متعلما اتكالي سلبيا ينتظر دوره دوما للمشاركة ،وفي الوقت الذي يحدده المعلم ووفقا لما يراه ،وقد يؤدي إلى كبت مواهبه ،وإطفاء الشعلة الإبداعية لديه.

كلمات مفتاحية: التعلم الاستكشافي ،التحصيل الدراسي

Corresponding author: MOHAND AKLI BOUZID

EXPLORATORY LEARNING STRATEGY TO RAISE ACADEMIC ACHIEEMENT

1. Introduction

The teaching process must be flexible, depending on the emerging situation during the lesson. It must respond to educational and learning situations in a way that leverages human and material resources. This provides the teacher with more options in choosing the appropriate strategy for the educational and learning situation.

As the world enters the beginning of the new millennium, we have witnessed exciting progress in various scientific fields, as a result of the scientific and technological developments that have occurred over the past fifty years. Studies indicate that the expected and current progress is in the fields of genetic engineering, biotechnology, and environmental technology, which impacts the lives of people in our various societies. This requires an emphasis on science and a greater understanding of nature to develop the ability to solve problems and innovate. This focus will only come about through proper preparation of generations to meet future challenges, increased attention to academic achievement, and the development of diverse skills among learners, based on diverse scientific thinking skills.

Although there is no single best method for teaching all scientific subjects, there are direct teaching strategies and methods in which the teacher plays a pivotal and active role in controlling the educational process in terms of planning, implementation, and follow-up. There are also indirect methods and strategies in which the teacher is a guide and the learner is a high-level participant in the educational process. This approach focuses on practicing various scientific processes and instilling positive behaviors in learners.

This has necessitated the development of a new philosophy for developing education, changing students' way of thinking, focusing on teaching and learning methods, and moving beyond a culture of receiving information to a culture of constructing, processing, and transforming information into knowledge. This knowledge is embodied in the discovery of relationships and phenomena, enabling students to move from the stage of knowledge to the stage of metacognition, which involves contemplating knowledge, delving deeper into its understanding and interpretation, and exploring its dimensions through a dynamic system of research and investigation. Academic achievement plays a significant role in shaping and defining the learning process, but it is not the sole variable in the learning process. It is influenced by various factors and forces, some of which relate to the learner, their abilities, aptitudes, temperament, and health characteristics, while others relate to the learner's experience, learning method, and the potential surrounding the learner. Academic achievement is a fundamental criterion for understanding the extent to which a student can achieve or acquire. It is more closely linked to the desired learning outcomes or educational goals, representing the final sum of knowledge, skills, and interests, measured by grades based on local examinations administered by the school at the end of the year or semester. While academic achievement reflects the learner's learning and their ability to express the information, values, skills, attitudes, and interests they have learned, it is an important topic that has occupied a significant portion of the thinking of educational and psychological

experts. It is a topic that captures the attention of parents, keen on their children's future, as it determines the individual's role in determining their career path in life. Given the current reality in our schools, we find that, in most cases, students absorb and memorize information in order to retrieve it in exams. This information is quickly forgotten. This is what the researcher observed regarding the low level of academic achievement in science. This is due to students' lack of effort in acquiring this information, relying instead on memorization and meaningless repetition. Therefore, any attempt to explore methods for developing students' thinking and increasing their awareness of their thinking processes and strategies is a topic worthy of research and attention.

The method of indoctrination has produced easily receptive minds, incapable of accepting other opinions, incapable of free and creative thinking, and incapable of creating job opportunities for themselves or others. This is because they have been programmed in a stereotypical manner that accepts nothing but the absolute truth and does not recognize the value of others. Therefore, it is imperative to insist on changing the teaching style and methodology from memorization and indoctrination to reflection and analysis, so that our children are equipped with the requirements of the times. In light of the previous presentation, the problem of the study lies in understanding the subject of the exploratory learning strategy in acquiring learning skills and the extent to which it enhances academic achievement. Accordingly, we pose the following questions:

1 - What is the method of the exploratory learning strategy, and does it enhance academic achievement?

2 - Is the exploratory learning method consistent with teaching principles?

3 - Does discovery learning retain information for a longer period of time?

Importance of the Research: The importance of the research stems from its discussion of a method that has become popular worldwide and is used in teaching all subjects, especially scientific subjects, and can be used at all academic levels and stages: discovery learning. It attempts to link it to academic achievement.

Research Objectives: To identify the importance of the exploratory learning method in enhancing academic achievement and retaining acquired information.

Methodology: This research falls within the category of analytical theoretical research and studies, as it describes and analyzes a set of intellectual frameworks in their interrelationships, in an attempt to extract relevant ideas. Therefore, the descriptive method was the most appropriate approach for this purpose.

Results

The Concept of Discovery Learning

Janet defines discovery as "a set of activities undertaken by an individual to solve a problem involving a new phenomenon that challenges their thinking" (Ghabain, 1982).

Bruner defined discovery learning as "a thinking process in which the teacher goes beyond the problem presented to them to explore new dimensions and meanings."

EXPLORATORY LEARNING STRATEGY TO RAISE ACADEMIC ACHIEEMENT

Discovery learning is a process that requires the student to reorganize and adapt their stored information in a way that enables them to see new relationships that were previously unknown to them.

Discovery learning is defined as a specific learning strategy at the experiential level.

Discovery learning is a process that requires students to reorganize and adapt their stored information to enable them to see new relationships previously unknown.

Discovery learning is defined as a specific learning strategy at the school level. It does not provide students with the full range of learning opportunities, but rather provides them with the conditions to engage with available learning materials and sources. This enables them to observe, gather information, and monitor facts themselves, linking causes and results, arriving at evidence and comparing them to arrive at general concepts, generalizations, and principles.

Bruner defines discovery learning as "a method that brings the teacher and the learner together in a collaborative setting. The learner's role is not limited to listening and receiving information, but rather plays a key role in the educational situation by providing them with good opportunities to learn the subject and discover things. This allows them to think independently as much as possible and prepares them to rely on themselves in learning. Through discovery learning, students seek to access appropriate knowledge from its sources, thus providing the opportunity for the student to acquire and develop thinking skills more effectively. The student is constantly thinking, searching for information from its sources, and utilizing it at any time in a manner that suits their mental abilities.

Using discovery as a method for learning rules and laws leads the individual and their abilities from the perspective of generalization and application. It is a fundamentally generative method that affects the individual's mental skills. Because it provides solutions to problems and brings joy to the soul, the method of problem-solving and discovery learning develops a love of learning and stimulates the need for knowledge and investigation to the point that it becomes an urgent need and an element of the scientific approach."

Lutfi Fahim points out that education Discovery learning is the learning that occurs when students are presented with educational material in an incomplete, incomplete form and encouraged to organize or complete it. This process involves discovering the relationships between this information.

Yahya Hindam states that the basic condition for discovery learning is that the material is not presented to the student in its final form. Rather, the student must reorganize or transform it in some other way before representing it in their cognitive structure. Discovery learning is a method of learning various subjects, beginning with the formation of concepts or general perceptions, and ending with the formation of concepts or general perceptions, and finally, the formation of generalizations that are suitable for solving problems or innovating. Bruner defines discovery learning as a method in which students are not given

complete learning experiences, but rather make a real effort to acquire and obtain them, using their mental processes such as observation, comparison, deduction, hypothesis, and prediction through open-ended activities directed at them. This method is predominantly inductive in nature: a learning style, and the student is the center of activity and effectiveness in this method.

Azza Khalil points out that the nature of discovery is present. In children, this discovery is achieved through direct experience, which Piaget emphasized, and its important role in the child's mental development and construction. Modern science projects also emphasize the importance of providing opportunities for learners to engage in and interact with educational materials so that they can achieve an effective learning level. Children can maintain the ability to classify complex objects, which enables them to group and classify them according to their characteristics, such as weight, color, touch, etc.

Educators emphasize that the first four factors depend on manual handling and interaction with experiences. This is achieved through handling and interacting with various materials, and children working with each other under the guidance of the school. This leads to the development of social experiences, in addition to the acquisition of logical, mathematical, and problem-solving skills. It also provides an opportunity for a balance between manual experiences and the growth of intelligence.

Contemporary educational psychologist Bruner defined discovery learning as the learning that occurs when the learner is not given a final answer, but is given the opportunity to organize information and discover the relationships between its meanings. Therefore, we find him emphasizing the importance of classifying objects or ideas, understanding the relationships between them, and discovering the ways in which they occur or exist, in order to learn through discovery.

The most important thing that distinguishes this method from others is its ability to understand and understand the meanings of the objects or ideas. Teaching methods shift the motivation for learning from external to internal, through student-led activities. This approach helps transition from teaching based on explanation and demonstration to teaching based on active participation in problem-solving situations. The discovery approach also takes on this importance as one of the main approaches emerging from the modern curriculum movement and has been championed by science educators for many years. The discovery approach is characterized by its endeavor to present science as a research and reasoning project aimed at producing scientific knowledge through the students' own practice. It does not treat science as a fixed cognitive structure in terms of its facts and the validity of its components.

Based on the above, we felt the importance and need to conduct this study and research into education using the exploratory learning strategy and to enhance academic achievement. Exploratory learning is the set of organized plans used by students, which encourage them to reflect on the structure of the problem before them and discover its elements for themselves. Discovery Learning According to Psychologists

First - Piaget and Discovery Learning

Piaget based his learning theory on the premise that mental development, and consequently the development of concepts, depends on maturity and experience. He added that the educational situations organized by the teacher may accelerate the learning process, due to the activities they include that are new to the learner's experience, leading to cognitive stimulation to the point of losing their cognitive balance (Al-Tanawi 2002: 94). Piaget's basic assumptions are that "every child is born an individual with certain and specific capabilities to interact with and discover the environment. We know that a normal child can, from birth, suck, see, hear, and grasp objects. These simple capabilities are the starting point for the development of children's thinking. The child interacts with the environment through these simple and basic capabilities. These capabilities and strategies that the child practices are reflexive actions at the beginning of the child's life, and then they soon become the subject of deliberate control by the child. The child discovers things deliberately and intentionally, and is constantly experimenting with and practicing new methods of discovery. The process of discovery occurs in a logical sequence. For example, the child cannot discover the principles of addition and subtraction until he or she understands fixed topics. Progress through this series of discoveries occurs slowly and gradually. The importance of Piaget's theory from an educational perspective is that the teacher is a useful framework through which students can be observed as they solve problems and understand the process. From the above, it is clear that Piaget's methods for exploring cognitive development have profoundly influenced the field of cognitive development and opened new horizons for research and investigation. It is clear that Piaget has proven, through his remarkable work, that he is the greatest psychological researcher of our time, and that his theory of cognitive development is the most comprehensive and integrated.

Second - Ausubel and Discovery Learning

Learning, from David Ausubel's perspective, is the process of creating relationships and connections between information already present in the learner's cognitive structure and the new information presented to him. Therefore, the cognitive structure, including its knowledge, information, ideas, principles, and relationships, plays a major role in the learning process. This information and knowledge are considered the foundations upon which we rely in adding what we want to present to the learner. Ausubel believes that something has meaning not when it elicits responses in us related to other things (behavioral understanding), but rather when it elicits an image in the content of consciousness that is equivalent to the thing in the same way.

A concept or image acquires psychological or real meaning when it is modified or equivalent in action. In other words, for any item or concept to acquire meaning, there must be something in the learner's consciousness that can be equated with it. This something is called the cognitive structure. The word "contextual" does not mean... It takes on meaning for the individual only when it is achieved through a mental representation of the essence of the car.

Osubel emphasizes that each academic subject has its own distinctive organizational structure, where the most comprehensive knowledge occupies the apex, and less comprehensive knowledge is subsumed below it. He believes that subjects should be taught in an integrated manner; indeed, physics, chemistry, and biology should be taught together without barriers between them, as he believes this would negate the features of the cognitive structure of each subject, which can be summarized.

From the previous presentation, we find that Ausubel does not diminish the value of exploratory learning when the importance of receptive learning is highlighted. Discovery learning may be useful in the early years of basic education, during which students form concepts. It is essential for problem-solving behavior and the development of innovative abilities. However, it cannot be used as a teaching method because it takes too long and is less effective compared to receptive learning.

Therefore, each academic subject has an organizational structure that distinguishes it from other subjects. In each structure, the most comprehensive and general ideas and concepts occupy the apex, followed by less comprehensive and general ideas and concepts, followed by detailed and precise information. The knowledge of any subject is formed in the learner's mind in the same order, from most comprehensive to least comprehensive. Therefore, Ausubel believes that there is a similarity between the information processing structure of each subject and the cognitive structure formed in the learner's mind from that subject.

Ausbel believes that the goal of school learning is to help the learner acquire and retain information, then transfer it to new learning situations and invest it in developing memory processes and acquiring new information and concepts. This is in addition to its practical importance in other areas of school education, such as curriculum planning and teaching methods, especially the discovery-based learning approach for primary school students.

Learning can be reception or discovery, depending on the method of presenting or presenting information to the learner. It can also be deaf or meaningful, depending on the way the learner processes and processes this information.

Third, Bruner and Discovery Learning:

Jerome Bruner made significant contributions to the field of cognitive psychology through his research on memory, sensory perception, language, mental development, and how children learn. Bruner gained widespread recognition as a pioneer in the field of curriculum and education. He focused most of his attention on teaching based on cognitive structure, utilizing the advantages of his spiral method, which organizes concepts into

varying levels of difficulty, from the simplest to the most difficult. His program in the humanities was titled "Man." Bruner was a pioneer in the study of perception in children and a strong advocate of the phenomenological method in psychology, which holds that we can only know phenomena, not absolute truth.

Bruner identifies three stages of cognitive development: practical representation, iconic representation, and symbolic representation. Bruner advocated for the need for a theory in the field of education that complements learning theories and works to raise the efficiency of the educational process, both quantitatively and qualitatively, by following the foundations and steps necessary to present educational material to learners in an appropriate manner. Bruner's theory is considered a theory of education because of its fundamental emphasis on the integration of the teaching and learning processes.

Bruner paid great attention to the development of cognitive abilities in children and the need to develop the curriculum, both in terms of content and method, to suit developmental characteristics. He was similar to Piaget and Ausbel in that both maturation and environment have fundamental influences on a child's cognitive development.

Comment: Bruner believes that learning by discovery is the learning that occurs when educational material is presented to students incomplete and incomplete, encouraging them to organize and complete it. It involves discovering the relationships between this information. The fundamental issue for Bruner is how we, as adults, represent knowledge and then present it appropriately to the emerging learner so that they, too, can represent it. Bruner is one of the researchers who supported the radical behaviorism championed by Skinner. He believes that behaviorism reduced all forms of psychological activity to stimulus-response-reinforcement schemes. The disagreement over the learning process is not limited to one aspect, but rather encompasses all the factors and variables related to this process.

For Bruner, discovery learning is the reorganization or transformation of evidence. In this sense, it is a type of thinking that occurs when an individual goes beyond the given information and arrives at insights and new generalizations.

Perhaps the most important feature of Bruner's theory is the gradual shift from laboratory research to practical fieldwork. He focused in particular on how to learn general sciences and emphasized the importance of discovery as a motivating factor in the learning process.

We note that the discovery process plays an important role in science teaching, as it considers the learner to have a positive and effective role in the educational situation and, as such, to be the primary outcome of the educational system. We also note that the exploratory method takes several forms. If we trace the development of the teaching and learning processes over the past few years, we find that, at first, the focus was on students' achievement in academic subjects. Then, in the latter half of the nineteenth century, this

focus shifted to focusing on information processing and scientific knowledge, as well as on mental processes and how to develop them. This shift was also driven by the emergence of new theories of teaching and learning within the fields of educational psychology and cognitive psychology.

Many efforts have been made to apply learning theories as a basis for deriving educational principles useful for application within the classroom. The emergence of Piaget's theory of cognitive development has had an impact on the field of education and teaching methods, and perhaps one of its most important applications is the emergence of the learning circle approach in teaching and learning. In light of the review of previous studies that the researcher was able to access, we find that there are studies that focused on discovery, addressing the learning cycle and its impact on academic achievement. These include:

- Abdel Aziz's (2004) study: The study aimed to determine the effectiveness of a proposed unit using a semi-directed discovery approach on both science processes, academic achievement, and attitudes toward science for first-year middle school students (both dependent and independent) from the cognitive domain. The results revealed statistically significant differences at the significance level (<0.01) between the average scores of students in the experimental group and the control group in selecting science processes.

- Musa's (2001) study: The study aimed to determine the effectiveness of a proposed program in developing teaching skills using investigative scientific presentations among third-year students in the Biology Department at the College of Education. The results of the study revealed statistically significant differences at the significance level (<0.05) between the control and experimental groups on lesson planning skills, in favor of the experimental group. - Professor's study (1997): The study aimed to know the effect of using the discovery method in teaching science on academic achievement and scientific creativity among eighth grade students in Gaza compared to the traditional method. The study, using statistical treatments, found that there were statistically significant differences at the significance level (&=0.05) in the level of academic achievement in science among eighth grade students in the experimental group who learn using the exploration method and the level of academic achievement among their peers in the control group who learn using the traditional method, in favor of the students of the experimental group.

Abu Qamar's study (1996): The study aimed to examine the effect of using the guided discovery method on eighth-grade students' achievement in science and their attitudes toward it. The study revealed statistically significant differences between the average scores of students in the experimental group and their peers in the control group in selecting concepts, in favor of the second experimental group. There were also statistically significant differences between the averages of students' attitudes toward science in the experimental group and the attitudes of their peers in the control group in the attitude scale, in favor of the experimental group.

- Zaitoun's study (1993): The study aimed to determine the effect of the discovery method on students' achievement and the stability of scientific knowledge in biology teaching at the university level in Jordan. The results of the study revealed the superiority of learning using the discovery method over learning using the traditional method. -Saydni's study (1989): This study aimed to determine the effect of the discovery method in teaching science to fifth-grade students on several variables, including student attitudes toward science. The results of the study revealed that the number of students who were able to acquire 50 percent of scientific concepts was statistically significantly higher than the number of sample members in both groups, with the greater increase in favor of the experimental group.

-Faraj's study (1986): This study aimed to determine the extent to which the exploratory method is preferable to the traditional method in teaching science in elementary schools in Kuwait. The results of the study revealed statistically significant differences between the average scores of students in the experimental group and their peers in the control group on the achievement test, in favor of the experimental group that studied the discovery method.

-Bock & Samuel's study (1980): This study aimed to demonstrate the effect of teaching chemistry using the discovery method on students' mental maturity, achievement, and IQ. The study concluded that the discovery group outperformed the conventional treatment group in the area of cognitive achievement at the levels of knowledge, comprehension, application, and analysis. Among the studies that focused on discovery and learning processes, we find:

- Fahmy's study (2005): The study aimed to identify the effectiveness of a proposed plan for using guided discovery to develop basic science process skills and scientific interests in kindergarten children. The study tool consisted of two scales: one for basic science processes and the other for scientific interests in kindergarten children. The results revealed statistically significant differences between the average scores of children in the experimental group and their peers in the control group in acquiring science process skills and scientific interests, in favor of the experimental group.

- Al-Jundi and Ahmed's study (2004): The study aimed to identify the effect of the Sockman Investigative Model on developing the integrative science processes of academically backward first-grade middle school students, compared to the traditional method. The results of the study revealed statistically significant differences between the average scores of students in the two groups on the scientific discovery and science process tests, in favor of the experimental group. - Al-Balushi and Al-Mumbali's study (2002): The study aimed to investigate the effect of training in designing a discovery schedule in science teaching on science processes and academic achievement. The results indicated significant differences in favor of the experimental group in the selection of science processes.

All of the aforementioned studies demonstrated the effectiveness of exploratory teaching in science over traditional methods in imparting science process skills. There is also an urgent need for the current study, which addresses the use of the exploratory method to develop science processes. This can be achieved by reformulating curricula and incorporating science processes into their practical activities. This is intended to enhance learners' understanding of scientific concepts from the memorization stage to the achievement test and comprehension stage, while maintaining the learning effect and emulating behavior in research and knowledge discovery.

Conclusion:

The discovery-based teaching strategy is very important and has a significant impact on academic achievement. Teachers' practice of this teaching strategy contributes to raising academic achievement and standard. Therefore, employing the discovery-based learning strategy in the modern teaching process is a requirement sought by all nations. Therefore, mobilizing all energies has become an absolute necessity. Teachers, as a creative and energetic human force, are responsible for shaping and preparing the young generation to carry the banner of preserving the achievements made and pushing them to increase their academic achievement to achieve further gains for the entire nation.

Acquiring discovery skills is an effective means and an important goal that must be taken care of because students tend to be active, constantly moving, searching and exploring. It was natural for study materials to focus on satisfying these needs by using exploration as a method and strategy that aligns with teaching principles, preserves information for a longer period, and raises academic achievement.

Based on what we have presented, we suggest that teachers, when using the discovery-based teaching method:

- Provide appropriate opportunities for students to investigate and discover appropriate solutions or answers to the questions raised.

- Select certain educational activities as scientific problems, whether those proposed by the science teacher, the students themselves, or researchers.

- Taking into account that learning takes a significant amount of time and effort compared to traditional methods, and that discovery-based learning takes a general framework that includes classroom discussion, question exchange, observation, experimentation, and discussion and interpretation of the information obtained.

- The teacher must master the art of posing questions and the appropriate type of questions to ensure the success of the discovery-based learning process.

BIBLIOGRAPHY LISTE:

Foreign review:

01–Ahmer Iqbal(2012) ,FACILITATING EXPLORATORY LEARNING IN SCHOOLS THROUGH VIRTUAL WORDS ,UNIVERSITY OF JYVASKLES FINLAND .

02-JOSé BIDARRA(2010),EXPLORATORY LEARNING WITH GEODROMO, ARTICLE IN JOURNAL OF RESEARCH ON TECHNOLOGY IN EDUCATION ,UNIVERSITY ABERTA PORTUGUESE OPEN UNIVERSITY.

03-GHAZI GHAIT (2010),AN EXPLORATORY STUDY OF THE ACHIEVEMENT OF THE TWENTY FIRST CENTRY SKILLS IN HIGHER EDUCATION,ARTICE IN EDUCATION AND TRAINING ,AMERICAN UNIVERSITY OF BEIRUT.

04- Georgette Goupil, et Guy Lusigman, 1993, Apprentissage et enseignement en milieu Scolaire, goétan morin editeur, Canada.

References in Arabic:

01-إبراهيم، مجدي عزيز(2007)،التكوين من خلال استراتيجيات التعلم بالاكتشاف،ط1،القاهرة ،عالم الكتب .

02-غباين،عمر(1982)،اثر أسلوب الاكتشاف في تحصيل طلبة المرحلة الإعدادية للمفاهيم الفيزيائية والطرق العلمية ،رسالة ماجيستير غير منشورة ،الجامعة الأردنية ،عمان الأردن.

03_عبد اللطيف بن حسين فرج(2005)،طرق التدريس الحديثة في القرن الواحد والعشرين ،ط1،دار المسيرة ،عمان الأردن.

04-عبد الحميد حسن عبد الحميد شاهين (2010)،استراتيجيات التدريس المقدمة واستراتيجيات التعلم وأنماط التعلم،كلية التربية بدمنهور ،جامعة الإسكندرية.

05- محمود داود سلمان الربيعي (2006)،طرائق وأساليب التدريس المعاصرة ،عالم الكتب ،الأردن.

06-عطيةمحسن علي (2008)الاستراتيجيات التدريسية الحديثة في التدريس الفعال،ط1،دار صفاء للنشر والتوزيع ،عمان

07 سعد الله الطاهر (1991) علاقة القدرة على التفكير الابتكاري بالتحصيل الدراسي: دراسة سيكولوجية، ديوان المطبوعات الجامعية، الجزائر.