PalArch's Journal of Archaeology of Egypt / Egyptology

The effect of Adey and Shayer model on achievement and habits of mind among fourth-grade students in physics

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Azhar Burhan Ismael. The effect of Adey and Shayer model on achievement and habits of mind among fourth-grade students in physics--Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(7), 13333-13356. ISSN 1567-214x

Keywords: Schayer Model, Habits of Mind, Achievement, Physics.

Abstract:

The research aims to identify)) the effect of Adey and Shire's model on achievement and habits of mind among students of the fourth scientific grade in the subject of physics ((and the experimental design was chosen with the two equivalent experimental and control groups with a post-test . To raise Rusafa first .The research sample was determined by random selection of two branches out of the four divisions, one representing the experimental group and the other the control group. The two research tools were represented by using an achievement test of the type of objective questions consisting of 40Paragraph and Scale of Habits of Mind represented by(32)Paragraph spread evenly across(8)fields , The results showed a statistically significant difference at a significant level 0.05For the benefit of the following experimental group students who studied according to the Eddy and Shire model and their superiority over the control group students who studied according to the usual method of achievement and habits of mind Eddy and. According to the research findings, a set of recommendations and proposals were developed Eddy and

Introduction

Witness the world today advanced science and technology quickly led to inflation knowledge as a result of it has become the educational systems face a challenge t great to reconsider building curricula to face these challenges in the fields of life different was the development of teaching methods and rely on modern models , including working on the development Aakaddrat mentality among Students and prepare them for dealing with scientific knowledge and associated technology.

, See(kellick & costa2003) That in order to develop intelligence and deliver the mind to the highest degree of HH and originality in thinking and tender should

sophistication p Li is usually the mind and it can be said that the habits of mind represent a new vision of intelligence, and emphasizes that the exercise of the individual habits of mind contributes to the development of intelligent advanced and successful in controlling operations Mental) agonist,(,Qtami 2005, 23)The aim of teaching physics at the school stages to provide students with basic information that helps students understand natural phenomena and acquire style of scientific thinking . And through a survey of the opinions of a group of physics teachers about the level of achievement in the subject of physics, in addition to reviewing the records of physics degrees in a number of schools affiliated to the General Directorate of Education of Rusafa Al-Awal,which showedasignificant decrease in the level of academic achievement in physics.

From this standpoint, the researcher found, after distributing an exploratory questionnaire to a number of physics teachers represented by B .30Teacher and school in different schools , about the reasons for low academic achievement and do they have knowledge of the cognitive acceleration strategy Eddy and Shire ,and what is their knowledge of teaching methods that develop the habits of the mind, and after reviewing the results of the questionnaire ,it was found that 92 %Of the answers say that the methods used to teach physics are the method of lecturing ,discussion, interrogation, and relying on memorization and indoctrination .And I got a deal rate100 %Of teachers stated that they do not know the cognitive acceleration strategy . Confirmed 95 %Of physics teachers do not have any information about teaching models that depend on developing habits of the mind .So came the idea of this research to choose a strategy emphasizes the role of the student in the educational process by making its main hub in Alamlbh education by activating the brain development work thinking types and knowledge of its impact in teaching physics to students fourth grade science by answering the following question:

What is the effect of model led and shire in collection and contract habits for the female students in the fourth grade science in physics?

Research Significance:

It emphasizes educators in science education that in general education and the teaching of science as a special form is not just the process of transferring the Tlqubn identifier of the learner , but means the growth of the student in the mental aspects and skills , emotional and teach students how to think and how to employ knowledge in life to live and adapt to the era of rapid chaAnge and development .This requires We are doing a conscious and deliberate scheme that leads as a result to making a change in the educational behavior of the learner for the better (Zaitoun 2007,133)And from the branches of science important and effective , which is the right or science is the science of physics as confirmed countries advanced to its importance worked to promote this science in the hearts of the educated and diligent often to provide the best methods and only Salib to transfer this knowledge to generations of the sequential order to communicate and Alastm decision Wa counter scientists who contribute more of the discoveries and therefore the lives

of a preferred community (Abdul Alsla m , 2006 ,16) And no secret we need for us to policies educational teaching in the field of teaching physics that from one of the most prominent a Hdavha is the ability to make an educated conscious thinker and a critic of a curriculum scientific solid in solving the problems of life , scientific and social (Atta Allah , 2010 ,13)And the fact that modern educational systems strive towards learning a basic broader and more permanent , and even the learner 's use of skills can think the there are a number of n variables that are related to mental and cognitive aspects of thinking Kaadat mind as it is a practice very necessary process for the use of thinking skills(Fatima Abdul Wahab,2007 ,14)Where Costa and Calic see that habits of the mind focus on the behavior of the student when he does not knowthe correct answer (2000 , Costa & kellc) Fadat contract for is a pattern of renderings smart drive Almtal m to Ofa' s productivity because it is made as a result of the response of an individual to certain types of pain Hclat and Altasaa lattes lead to the thinking and the hopes and the search and this means a n modern trend focuses on the ways And the strategies by which learners produce knowledge, and not on their recall of it or reproductively according to a previous pattern.

It is believed Marazno that the possession of the learner habits weak mind lead to learning the kind of weaknes from it (Harthy,2002,9)

The habits of the mind of the important variables related to the performance of academic learners in the stages of education all so we note confirm many of the studies at the beginning of the century atheist twenty on the importance of working to teach the habits of mind and evaluate Watch c Aa learners to stick them to become part of the knowledge of their intention(Alrabghy, 2015 ,287) (Both study allow Jaffery confirmed , 2013And Wadhi Al-Otaibi,2013) (Afaneh's,yusif,2013 And) Yasmin Samah,2016 (On the importance of the habits of mind development through the adoption of modern methods and techniques in teaching . And that the best teaching strategies are those that emphasize modern theories that make the student the focus of the educational process(Ibrahim and Nelly , 2001,27)

The Eddy and Schaire model is considered one of the effective models in teaching as it aims to develop thinking and accelerate mental development of students by moving to higher stages of thinking as it depends on Piaget's ideas for levels of mental development and on Vygotsky's ideas in social construction) Piaget's constructivist theory in cognitive learning as explained Piaget that the individual builds his knowledge of himself and can not to be and Aaoua empty to pour the knowledge according to the will, and to order access to it must raise the levels of individuals cognitive and accelerating levels of thinking where they have learning is the process of building representations of meaning and look to the experienced student knowledge for their consideration to the mistakes of the student are positive so that can be corrected as required full, (2003 ,72,Al-kamil of Vygotsky) , they focused on the growth of knowledge of the individual to what has him of links tangled between him and the culture as it grows information of the individual and his ideas and trends through its

interaction with other language and culture Ala that an important role in the growth of a thousand response cognitive (Afaneh and Youssef ,2009 ,243) We count learning in the context of a social one road positive in increasing the motivation of students and their ability to take ful decisions important and the development of the concept of self have from through Individual interaction and exchange of ideas with his peers as it allows the learner to learn from others by raising the information that he has working on the interpretation and reach to solve the problems of around (Adey &Shayer , 1993.35)Thus, the importance of Eddy and Shire's teaching strategy lies in:

1 -helps this model to encourage the development of thinking and moving from the stage of sensory to stage the formal terms of providing them with the problems of not being able to solve them and manage private separation and with the participation of students and the discussion between the teacher and the student will lead to speed up thinking they have .

2 -is specimen Addy and shire entrance to the representation of knowledge emanating from the growth of mental status on the basis of the ideas of Piaget and the basics of the theories of learning to Vygotsky .(Afaneh and Youssef ,2009, 244).

3 -By using the structured class discussion, it may have a noticeable impact on the development of students ' academic achievement.

4 -planning tasks that train the students to learn how to think of what is being from around them for the development of knowledge have they showed us .

5 -It deals with the lessons of science well and is considered one of the guiding aspects of work and awareness of idea(Mosua ,2002,69)

Therefore, the importance of current research lies in response to scientific and technological progress in the world and keeping pace with contemporary educational trends that recommend experimenting with modern educational methods and models that make the student the focus of the educational process .In addition to developing students' thinking skills by demonstrating the effect of the model on developing habits of mind, which are the basis for intelligent behavior in solving problems.

Research Goals:

The current research aims to verify From the effect of Eddy and shayer model:

1-Collection of physics students at the fourth of the scientific.

2-Habits of mind among the scientific fourth students.

Research hypotheses:

1- There is no statistically significant difference at a significant level)0.05 (Between the average scores of the experimental group that are studied according to the Eddy and Shayer model and the scores of the control group that are taught according to the traditional method of achievement test for the subject of Physics.

2- There is no statistically significant difference at a significant level)0.05Between the mean scores of the experimental group studied according to

the Eddy and Shayer model and the scores of the control group that are studied according to the traditional method A in the Habits of Mind scale.

Research limits:

The search is determined by the following

1-Female students of the fourth year of middle school (the scientific branch) in the preparatory schools of the General Directorate of Education Rusafa 1.

2-The second semester of the academic year 2017-2018

3-The last four chapters of the physics book scheduled for the academic year2017-2018 (Represented by) reflection and refraction of light), (mirrors), a (thin lenses), (electrostatic and stable)

Defining terms:

Adey and Shayr model

Razuki and others knew him, 2015 Banh

-A group of organized and interacting experiences among them that we would like to stimulate the thinking of learners according to four steps: (preparation and discussion , cognitive conflict, metacognition, bridging for the purpose of achieving the desired goals) (Razooqi and others,2015,,68)

The researcher knows it as a procedure : that it is a set of steps that the researcher follows to assist in the arrival of the fourth scientific students , which did not reach the stage of abstraction in thinking, to reach it early by studying the experimental group students of the second semester of physics , according to the steps represented by) numbers ,cognitive conflict) Thinking, thinking, bridging.Achievement(ArfaAbu Jadu 2009)

The outcome of what the student learns after a certain period of time, and it can be measured by the degree he obtains in an achievement test, in order to see the success of the strategy that the teacher puts and plans to achieve his goals and what the student reaches of knowledge translated into grades .

()Abu Jadu,2009 ,425)

The researcher knows it procedurally that it is the result of what the students of the research sample have learned in terms of physics for the fourth scientific grade and for the second semester after the expiration of the experiment period, which can be expressed in the grades they obtain in the achievement test prepared by the researcher for this purpose.

Theoretical frame work:

Adey and Shayer Model:

Numerous attempts appeared in the last decade of the twentieth century to increase the level of mental development of learners ,as educational programs and teaching approaches were developed with the aim of accelerating the growth of the brain structure of learners by moving them to the stage of abstract thinking at an early time . One of the most important teaching approaches that have proven effective in teaching is the strategy of Eddy and Shire As this strategy was used initially in the subjects of science and mathematics, and this strategy depends on the ideas of Piaget and Vygotsky (Affana and yusif ,2009, 241)The constructive cognitive theory makes the learner build his own knowledge in light of previous experiences by stimulating his previous

knowledge structures by confronting him with educational situations involving problems that cause a knowledge gap to appear that pushes him to a purposeful activity in social interaction with the guidance and guidance of the teacher to provide educational supports to bridge the knowledge gap and reach solutions For problems and contradictions) Awad,2006 ,188)According to Piaget's theory , the learner does not move from one stage to another except after passing through an experience resulting from a special training process when moving from the stage of physical processes to the stage of formal processes as well as making a change in his environment because the learner interacts with the environment and society and forms his ideas(Adey, 1999: 5 (The theory of Vygotsky has emphasized the social relationship that is working on the development of all mental functions Supreme has explained that Alnmwalakla in children consists of two aspects:

- The physical aspect (the brain and its structure), i.e. the so-called genetic aspect , the biological structure of the brain and the extent to which brain cells absorb information.
- The environmental aspect acquired represents the cognitive development acquired through social interaction between the child and his social environment to which he belongs.(Titi, 2007 :127)

To expand Mdarkina of how to learn the students to science and the establishment and integration of social culture , valuable school education ie that education j m according to this theory be determined in the light of the context of C Tmai includes a drawer of the apprenticeship in education where you must p Li teacher to me their cooperation n with the requested knows requested to know some per share b p also any make education a mutual experience for both of them and here we find that in a total of Tsky focuses on the cultural aspects and social learning) Mahmoud,2002 ,194)Therefore, teaching according to social constructivism enables learners to build their knowledge by identifying and selecting prior knowledge, interpreting meaning in light of previous experiences, modifying their cognitive framework and strengthening social interactions within the social context (C awley, 1994,70))From the above, the importance of cognitive constructivism and social constructivism in learning is evident , which paved the way for the emergence of the Eddy and Shire model , which was considered an innovative approach to learning and which was introduced as a program on the scientific curriculum for students whose ages range between) 11-14 (And teaching philosophy according to this depends on the specimen that the individual is under the influence of the positions of conflicting concepts with what is known and what is in possession of the natural world in which it lives(, Suror1991 ,466) And by presenting problems that are unable to solve them with the existence of a special and effective management of the class and through the active participation of the learner and discussions between the teacher and the learner in addition to the presence of a set of activities and working papers ,meaning that the curriculum is designed in a way that challenges students' perceptions, as lessons are prepared for the development of thinking from the sensory stage To the formal stage of the growth stages of the mind of Piaget (Adey, 1999,4) And by training learners on this strategy, it will enable them to move to higher levels of knowledge that will result in accelerating

their thinking because the main goal of this model is how students learn and not what students learn, and this achieves the goals of the curriculum in a better way) . King 'College London, 1999 (Has been launched on this model for many labels including strategy accelerator cognitive , speed up the science, thinking accelerate, accelerate growth and mental specimen of knowledge(Al-jundy2002 ,(fakhry,2015).

A scorer model Adey and Shayer.

1- Designed esters Léger cognitive accelerator to accelerate the growth of mental intervention by mental adjustment brightest Raffi learners and revived E traditional approach through the exercise of the activities included in this model , which Ssammt for the development of cognitive conflict and building

Social for learning and thinking thinking.

2-The cognitive acceleration strategy is a method of teaching that works to consolidate the concept of a cognitive mental challenge to the learners by asking questions by the teacher and suggesting an answer by the learners through open-ended intellectual activities that work to create a secure psychological environment to express their views.

3-Activate both sides of the brain as it is working to raise the level of growth and mental development of thinking that the Lighter different like visual thinking) through materials and Aladoa t crisis to do with activities classroom (and Altvkiralnaked) by modifying the path of thinking and thinking about thinking) and creative thinking (by creating patterns of new thinking)

4-Increasing the ability of learners to build their personal knowledge by conducting educational activities on their own ,enabling them to have a deeper understandingofthe material and stimulate thinking processes, and thus accelerate their thinking abilities by generating new ideas.

(Razuki &others 2015, 69-71)

Cognitive Acceleration Strategy Steps:

This strategy includes four main steps, according to each of) Adey & Shayer, 1990,267-285) ,(Affana and Yusef, 2009, 245), which are as follows:

1-Setup sensory: This is the stage , a preliminary step to confirm the understanding of the first of the learner and the formation of a true meaning of the concepts for the problem is also noted the difficulty of concepts and clarify the new terms so that Ttkoan a roll they have to these concepts and care about this stage of self - development and social construction of students Heb t exchange of information among them.

2- Cognitive conflict: This step is the central idea in this strategy is not a question of a Astttsa student solved using traditional ways of thinking and it can be said as a contradiction between the two scenarios to one concept , one of them earlier in the structures of knowledge and the other is a proper scientific visualization .The cognitive contradiction is resolved when the learner realizes the error of the perception that he has, and this requires a reorganization of the concepts in the cognitive construction of the learner and for this, the conceptual change process is a product of the cognitive conflict.

3- Beyond knowledge: It is the awareness of the individual to think and learn about what is known and what is not known and the purpose of this stage to develop the capacity of the individual to plan strategies for the use of processes leading to the production of the required information and require that the step fully aware of the steps used to solve problems and the learners to reflect on their ideas and evaluating the productivity of their thinking, that this step is working on the development of intellectual skills and enable learners to generate creative ideas and the integration of new experiences new acquired with their previous experiences, leading to accelerated cognitive mental development.

4- Bridging: It is intended to build bridges between the experiences that the learners have acquired from the activities included in the curriculum they study and the experiences of daily life, which makes what they learn closely related to their lives and has a functional meaning for themselves andthe world around them, meaning that it works to build intellectual bridges in order to extract educational experiences from The theoretical framework to the practical framework and life applications.

(Affana and yusef,2009 ,246) , (Adey, 1992,137-140)

It is evident from the previous steps that the cognitive acceleration strategy benefited from Piaget's theory in addition to Vygotsky's ideas ,especially in the stages of sensory preparation, cognitive conflict, metacognition and bridging.

-Habits of Mind:

Mental habits are considered one of the modern theories in cognitive psychology, as their first beginnings were in the mid-seventies of the twentieth century by the American management scientist Stephen Covey) Stephen covey (When he launched MPH Home Seven Habits for the most effective in his thesis to obtain the degree of doctorate in management science and has become his theory know that today 's theory of the seven habits of mind of Stephen Covey and in the context of the same both Arthur Costa and beta Calik came at the end of the last decade of the twentieth century and launched habits theory mind sixteen confirmed as Costa and Calik thinkers that have the characteristics of actors can be identified and identified as characteristics have been identified among individuals are characterized by success in various walks of life) , (Turaihi,&Kazim,2013 ,16,) That the traditional systems in education focus on limited products with the correct answer, while the habits of mind allow the learner to think flexibly in searching for the answer when he is unable to know it from here. The cognitive trend’s interest in searching for strategies that work to arrange students ’situations in order to practice the thinking process from Through educational programs that are based on an experimental theoretical framework, which it is hoped will lead to the formation of a set of mental processes, starting from simple operations to complex ones, so that the individual develops his intellectual output so that it becomes mental habits that the individual uses in various aspects of life, the habits of the mind are a developmental process. It leads to solving problems and producing ideas. The habits of the mind include orientation, tendencies and values. Therefore, they lead to different cognitive preferences. The individual is selective in his mental

behavior depending on his orientations, inclinations and values (Nawfal and Saifan , 2011 ,297)

There is a set of definitions of the habits of the mind provided by both Arthur Costa and Bena Calic's website, which we list as follows:

A process of developing and following up that leads to the production of ideas and solving problems, and includes tendencies ,attitudes and values ,which makes the teacher selective in his mental behavior as well as helps to find different details

group of Alakhtiarac about the pattern of operations mentality that should be used valuable position of what and maintain it as it focuses on the description of the behavior of the learner Altvkira when they do not know the answer right

The tendency of the learner to act in a way that smart when you face the problem of what and when is the answer or the solution is available in the structure of knowledge.

A pattern of intelligent performance of the learner that leads him to productive actions ,which consist of cognitive processes and thinking skills.

Tendency of the individual to deal intelligently when faced with the problem of what or when he does not know the answer.

Assumptions underlying Habits of Mind:

The mind a thinking machine can be operated with high efficiency.

We all have a mind that can be managed however we want.

We have the sufficient capacity to self-direct the mind, to self-assess ,administer , and modify it.

Habits of the mind can be taught to arrive at the products of the operation and management of the mind.

It can be determined Mjmo Ah of the habits and skills to reach the highest efficiency in performance in all normally .

We can add any new habit by dealing with the mind and we can provide it with mental energy to expect higher performance.

Habits of the mind are formed as a result of the individual responding to types of problems or questions, provided that the solutions to the problems and the answers to the questions require research, investigation and deep thinking.

Some educational situations can be organized to achieve the possession of a mental habit within a specific subject.

We must reflect on the use of the different habits and behaviors of the mind to see the extent of their impact, and try to modify them to advance them towards future applications.

Habits of the mind are based on the integrative view of knowledge, and the ability to transfer the impact of learning, as they are transferable from one material to another, and from one context to another.

Mental processes and skills can be upgraded, from simple habits and skills to more complex ones until learning management skills are achieved..

(Yusef Qatami and Umayma Muhammad2005 ,156-155)

Describe the habits of the mind :

An individual who possesses different habits of mind about who owns Mhaart thinking only, as it is in addition to the possession of Oryx rate varied to think and Akaddart mental, but he has Alaardh and the tendency to use this Akaddart and Almhart mental in all activities

Life or all life situations he goes through(Saied,2006 ,428)(

Costa and Calic 2000 Costa & Kallick , (To extract sixteen of KIA's behavior of active thinking or an effective screwdriver , and the following is a description of these habits :

1- Perseverance: the nature of Alovard qualified they are committed to the task entrusted to them until the complete, not easily succumb to the difficulties encountered in the course of their work .

2- Control recklessness: One of the characteristics of problem-solving individuals is that they are deliberate and think before they embark on a work, and thus they establish a vision for a product, action plan, goal or direction before they start.

3-Listening with understanding and compassion: Highly effective people spend a great deal of their time and energies listening, and some psychologists believe that the ability to listen to another person or sympathize with and understand the other person's point of view is one of the highest forms of intelligent behavior.

4- Think Flexibly :Resilient individuals have the power to change their minds when they meet additional data ,learn about multiple outputs and activities simultaneously, and rely on a repertoire of stored problem-solving strategies(Costa & Kallick 2000 , 4.)

5-Thinking beyond thinking: It isthe nature of intelligent people that they plan their thinking skills and strategies, contemplate them and evaluate their quality, and supra-cognitive thinking means that a person becomes more aware of his actions and their impact on himself and others.

6-Fight for accuracy: individuals who appreciate the precision take enough time to examine their products, as we see them j we shall return the rules that they should Alaltasm their Ajon ware models and visions that they have to follow, as well as the criteria that should be used to make sure that the final products harmonize those standards Full compatibility. (Qatami, and Amor2005 114-111)

7- Questioning and posing problems: One of the distinguishing characteristics of the human being is his propensity and his ability to find problems in order to solve them .Individuals who are characterized by the ability to solve problems know the doers how to ask questions that fill the gaps between what they know and what they do not know.

8- Applying past knowledge to new situations: Intelligent individuals learn from experiences. When a new confusing problem confronts them, we see them resort to their past to extract their experiences from it .

9- Thinking and communicating clearly and precisely: a person's ability to refine language plays an important role in enhancing one's cognitive maps and abilities to think critically, which forms the knowledge base for any effective action, and enriching the complexities of language and its special details, together, produce effective thinking, so language and thinking are two things that go hand in hand. They are two sides of the same coin.

10- Collecting Data Using All Senses :Intelligent individuals realize that all information enters the brain through sensory inputs, and those with sensory entries are open, alert and sharp. They absorb more information from the environment than others absorb) .Qtami,2007 ,112)

11- Creativity - Visualization - innovation (renewal): Most Alovard have the energy to generate Mentjatouhlol and new methods and clever and ingenious if harnessed them opportunities for those energies to develop, and the nature of Alovard the creative they are trying to visualize solutions to problems in a different way Mtvhchin alternative possibilities from several angles.

12- Respond with amazement and awe: the students who have this habit are seeking and are looking for problems to solve them enjoy and submit them to others, independently and use or phrases demonstrate their independence (do not remember me , I can answer to him and guided alone), they are intellectuals Creative people love what they do .

13- Taking Responsible Risks: I previously mentioned that students learn to control their recklessness, but at the same time they begin to show signs of taking risks in their work more than before, in order to try a new strategy or method of thinking for the first time, and they are also willing to do a hypothesis test New if suspicion they have about it .

14- Finding humor: Humor has been found to release energy on creativity and stimulate high-level thinking skills such as anticipation, combined with caution, finding good relationships, visual visualization, and action. Similarities, and individuals with the ability to engage in humor have the ability to perceive situations from an appropriate, original and interesting location.

15- Reciprocal thinking: Collaborating individuals realize that they are together intellectually and financially much stronger than any individual who lives alone. Perhaps the most important trend in the post-industrial era is the increased ability to think in harmony with others. Working in groups requires the ability to justify ideas and test the validity of strategies. Solutions with others, it also requires developing a willingness and openness to help you accept feedback from a critical friend .

16- Constant readiness for continuous learning: Intelligent individuals are always ready for continuous learning, as the confidence they feel is coupled with curiosity in them and students who have this habit. They tend to remain open to continuous learning, and they tend to ask questions until they receive feedback, and they fully realize that experience is not knowing everything but knowing the next and more level of work (Nawfal and Saifan, 2011, 305)

Previous studies:

Results	Statistical means	Tools	the sample	Stage	Place	Purpose of the study	Researcher's name
The higher the impact of the acceleration project The cognitive level in the levels of	t-test	Piaget's cognitive development test	)105 (Students from Parkside Schools	Seventh students	Britain	The effect of time on the cognitive development of students participating in the project to	Valley&Shire 1994

knowledge development and achievement compared to the national level						accelerate knowledge and achievement through science education	
It revealed the study of the existence of differences of significance statistically on each of the scale of thinking critically and scale IQ successful due to the program training proposed to speed up knowledge for the benefit of Almjmuahaltger Libya	Analysis of variance (ANCOVA) (2 × 2) Binary subscriber	Test critical thinking and successful intelligence	128 Male and female students	Fifth core	Jordan	The effectiveness of a training program to accelerate cognitive development in the development of critical thinking and successful intelligence among a Jordanian sample of fifth -grade students.	Katami and Mustafa 2015
There are differences of significance statistically on each of the cognitive representation of the scale and test grades in material Alahiah for the benefit of Mahmuah experimental	The T-test	Cognitive representation scale and achievement test	60student	Scientific fifth	Iraq	The effect of Addy and Shire's model on the achievement of fifth-grade students Scientific in biology and cognitive representation they have	The Sultani 2016
The presence of statistically significant differences in the achievement test and the critical thinking test in favor of the experimental group	t-test	Achievement and critical thinking	60 students	The first is average	Iraq	Measuring the impact of Addy and Schayer's model on achievement and critical thinking in mathematics	Awake 2017
The presence of a	t-test	Achievement	61 students	The average	Iraq	Employing crossword puzzles	Khaji 2016

statistically significant difference in favor of the experimental group who studied according to the crossword strategy i n achievement and developing habits of mind		test (36) items of the multiple choice type and the Habits Mind Sc ale of 34 items		first		in teaching physics and its effect on achievement and developing habits of mind among first-grade intermediate students	
The presence of statistically significant differences in both the habits of mind scale and the problem-solving strategy for the benefit of the outstanding students	Pearson and Spe arman c orrelatio n coefficie nt and bi nary vari ance ana lysis 2) (2 * t-test	Identific ation of habits of mind and problem solving	260 male and female students	College of Educ ation , the first level an d Alstoy fourth	Gaza	Mind and their relationship habits strategy to solve problems "compared to " study among students affected the P and ordinary disabilities and Al- Azhar University– Gaza	Imran 2014
1- The presence of statistically significant differences in favor of the experimental group in both the Habits of Mind scale and the Academic Self Scale 2- The existence of a positive correlation between the Academic Self Scale and the Habits of Mind Scale	Test t-test And Pearson Correlati on Coeffici ent	Habits of Mind Scale and Academ ic Self-Concept Scale	student90	College of Educati on, Depart ment of Life Science s	Saudi	The effectiveness of x t DONC i Altv k seen in the development of habits of contract for the concept and of the y data Alokad yum j for d j i Unqualified pastor of Biology , Faculty of Terre e ndodontic	Al-Otaibi 20 12

Research procedures:

Research methodology: The researcher adopted the experimental method, which defines: “It is an intended modification of the specific circumstances of a phenomenon and the observation of the changes that occur to it and its interpretation” (Abd al-Rahman ,2007: 474) Was chosen as the experimental design The two groups Almtkavitin experimental and control The posttest , which

designs with partial adjustment, the relevance of this research and the chart below shows that

Measuring the dependent variable)Post test(		Independent variable	Parity	the group
Academic achievement test Habits of Mind Scale	Academic achievement Habits of Mind	Model Valley and Shire	*Chronological age in month *Previous test information *Intelligence Habits of Mind Scale	Experimental
		traditional way		Control

Third: The research community and its sample Research community and sample:

The research community includes all students of the fourth scientific grade in secondary and middle school for girls of the Baghdad Education Directorate / Rusafa Al-Aula for the academic year2017-2018The Balqis Girls High School affiliated to the Baghdad Education Directorate / Rusafa Al-Awal, a sample of schools was chosen intentionally for the following reasons:

1- The absolute cooperation of its management to ensure the safety of the experiment.

2-The convergence of cultural and social environmental characteristics between the members of the sample and societ

3- The presence of four divisions for the fourth grade of science in the school, which gives an opportunity for random selection of the experimental and control groups

4-The presence of a laboratory in the school helped complete the experiment.

The sample research w has chosen the way of random, as it was chosen bifurcated way the draw was the Division (c) represent the experimental group and the Division (a) representing the control group after the exclusion of female students Alraspat (statistically) in two divisions (c, a) the total number)70) Reality student(35) Students in each group. a

A -Control of internal safety: the equivalence of the two groups:

Although all students of the research sample from one geographical area and from a socio-economic and cultural milieu are somewhat similar, and their distribution among the people was random by the school administration, but the researcher decided to do parity of the two groups in some variables and as shown in the table (1)

Table) 1The arithmetic mean and the T -test for the purpose of equivalence between the two research groups

indication Statistic		Degree Freedom	T -value		deviation Standard	Average Arithmetic	Number Individuals the sample	the group	Equivalence sticks
			Tabular		Calculated				
Is not indicative	68	2.00	1.07		9.17	189.7	35	Experimental	Chronological age in months
				6.77		191.8	35	Controls	
Not a function	68	2	1.13	6.17		22.21	35	Experimental	Otis Lennon mental capacity test
				5.33		22.02	35	The Zabtah	
Change machine	68	2	0.26	2.12		9.54	35	Experimental	Previous test information
				1098		9.41	35	Control	
Not d	68	2	1.12	5.14		40.91	35	Experimental	Habits of Mind
				7.95		39.11	35	The officer	

B - External safety control:

For to check external safety demo for the design of the T researcher of the following actions:

1- The same scientific material, activities and daily and monthly tests were presented to the two groups by the sameteacher.

2- Students of the two groups studied in the laboratory.

3- The two students exposure to achievement test and habits of mind in the same Aleo m.

Search Supplies:

Determining the scientific material: The scientific material was defined in the last four chapters of the Physics book Pain for fourth grade science ,i7 , And represented by the following topics) :Reflection and Refraction of Light), (Mirrors), (Thin Lenses), (Electrostatic and Stable)

Total	Level goals						Threads	2 seasons
	Evaluation	Installation	analyzing	Implementation	Accommodating	remember		
34	3	4	4	5	8	10	Reflection and refraction the light	Seventh
32	2	2	6	6	6	10	Mirrors	VIII
36	2	3	6	6	9	10	Thin lenses	Ninth
42	3	3	4	8	9	15	Static electricity	The tenth
144	10	12	20	25	32	45	Total	

Formulating behavioral goals :The behavioral goals represent a guide to the researcher's work during the implementation of the experiment, the preparation of the teaching plans and the building of the achievement test . 145A behavioral goal in the cognitive domain distributed on the six levels according to Bloom's classification and as shown in Table No .2

Behavioral objectives for the four chapters (seventh, eighth, ninth, and tenth Table No.2

Preparing teaching plans: The researcher prepared) 42)A teaching plan for each of the two research groups based on the behavioral objectives that were prepared according to the content of the physics book, 7th ed., Of which(21)A plan based on Eddy and Shire's strategy for teaching experimental group students and(21 A plan according to the traditional method of teaching to teach the control group .Offered Anmozgen of these plans on a group of specialists to demonstrate the achievement of the objectives for which they were created, and in the light of the observations carried out some of the amendments T. them to become as the final extension)

-Two search tools:

-Achievement test

1-Preparing the test map:

In order to ensure the comprehensiveness of the test items for the mental levels and the academic content and their distribution in a fair and objective manner, the researcher prepared a table of specifications that includes the relative weight of each subject and the relative weights for each behavioral objective to determine the number of test items related to the parts of the content in order to achieve the validity of the structure of the test as shown in the table:)

Test map (table of specifications) for the academic achievement test

3 total	Evaluation	Installation	analyzing	Implementation	Accommodating	remember	Weight to content	Number Pages	The semester
	the weight 7 %	the weight 8 %	the weight %14	the weight %18	the weight 22 %	the weight %31			
Number of paragraphs									
8	1	1	1	1	2	2	%20	19	7
8	1	1	1	1	2	2	20 %	19	8
10	1	1	1	2	2	3	%24	22	9
14	1	1	2	3	3	4	%36	33	10
40	4	4	5	7	9	11	100 %	93	Total

The number of paragraphs per cell was calculated according to the equation
Number of questions per cell = content weight % x weight of each level of behavioral objectives % x total number of questions
Believe test : :mean sincerity test that measures what the test mode for which)Aleksoani and others,2007 :19) .The verification of the virtual sincerity test by introducing a group of experts in the field of education measurement , psychology and methods of teaching to verify virtual sincerity has been adopted by the opinions of experts(80)
The achievement test was applied to a survey sample consisting of(30) Students from the students fourth grade science in secondary nostalgia for girls , to check the clarity of the paragraphs and test instructions in addition to the crisis period of time for a choice where the average time for testing50Accurate .To verify the psychometric properties of the test, the test was applied to a second probing sample consisting of) 100)A student of the fourth scientific grade at Hanin Secondary School for Girls, where the difficulty coefficient was found for the paragraphs, whose value ranged(0.21-0.52)Thus, all paragraphs have a good difficulty coefficient , as paragraphs are considered good if their difficulty factor ranges between(20 - %80 . (%The discriminatory strength of each of the test items was calculated and found that its value ranges from) 0.30-0.70)Therefore, I considered all the paragraphs with good discriminatory power because they have a distinct power greater than(20%) (Al-Zahir and others 1999- : 129-130) .We calculated the effectiveness of Alp alternatives were erroneous and negative values of all paragraphs of the achievement test . This means that the wrong alternatives attracted a number of lower group students more than the upper group is a good and effective alternative when they are negative and significant value of) Al -Dulaimi & Adnan,2005, 93).
It was the expense of the stability of the paragraphs of the test grades by using using the method of internal homogeneity equation) Kiodr Richardson-

20) If the test is stable(84 ,%)And this is good as the tests are prepared if the stability factor is) 0.67And above)Al-Nabhan,2004 : 240) With this, the test is ready for application.

Building the Habits of Mind Scale:

The process of building the mind return scale went through the following steps:

-Determine the goal of the scale ,which is to measure the habits of mind among the fourth-graders of science

-Determining the fields of scale :After the researcher examines a number of literature and standards that include different classifications of mental habits, including studying each of (cost a & kalliek , 2000) And including) 16)A mental habit , and (and Muhammad,2011)Included(16 (A mental habit , and) Al-Jifri ,2012 , (And (Alprusan,2013) (4)Mental habits , and (atabi , 2013 ( )5)Mental habits , and (Shamrani2015) (16A mental habit . And based on the metrics he had seen) ,16A mental habit is based on a group of experts in the field of psychology and teaching methods to determine the most important mental habits that are commensurate with the nature of physics and the nature of middle school learners . Where it was identified eight mental habits depending on the proportion of agreement) 80 (%Of experts represented by (perseverance , reciprocal thinking, thinking flexibly ,questioning and posing problems, applying previous knowledge in new situations, thinking about thinking ,constant readiness for continuous learning . Development, innovation, and regeneration). The initial form of the scale paragraphs has been defined as four Paragraphs for each mental habit, and thus the scale became in its initial form consisting of) 32 (a paragraph .And set the response scale for each paragraph (I practice it always, I do it sometimes , I don't practice it (and according to the progressive scale) 3,2,1)It reached the highest score on the scale(96)And lowest degree(32)And in my account(64. (

Validity of the scale :The apparent validity of the scale was verified by presenting the scale in its initial form to a group of experts in the field of education, psychology , and teaching methods. 100%

To verify the construction's authenticity, the scale was applied to a survey sample consisting of 100Student of secondary nostalgia for girls using the Pearson correlation coefficient found coefficient only link between the student 's degree on each paragraph and the degree of the student on the field tastiest j belong to him, and the coefficient of the degree of each college degree to scale correlation, and the degree of each paragraph college degree to measure correlation coefficient .It was found that all the paragraphs are statistically significant at a significant level)0.05And degree of freedom 98 This indicates that the size of the habits of the mind has a high degree of internal consistency.

Reliability : The scale was verified using the Kornenbach Alpha equation , and the calculated value was) 0.89 (This shows sticking to the fixed scale .

Procedures for applying the experiment:

_The researcher began to conduct the experiment on Sunday18/2/2018And it endedon Sundaythe corresponding 22/4/2018And by three lessons per week for each group . Equivalence measures were applied between the two research groups from the first day of the initiation.

- Both groups were taught inside a physics lab.
- The experimental group students were distributed in equal and heterogeneous cooperative groups.

-The experimental group was studied according to the strategic steps of Eddy and Shire, while the control group was studied according to the usual method.

-elment test was applied on Sunday) 22/4/2018

Statistical means :The researcher used the statistical bagspss

Display results:

The presentation of the results includes two main aspects:

1- Academic achievement :to verify the first null hypothesis, which states that (there is no statistically significant difference at a significant level (0.05 (Between the average scores of the experimental group that are taught according to the Eddy and shayer model and the scores of the control group that are taught according to the traditional method in the achievement test of the subject Physics

Therefore, the scores of the achievement test ,which was applied at the end of the experiment for the two research groups ,were monitored and by using the T-test for two independent groups , the calculated T value was greater than the tabular at a level of significance) 0.05)In this way, the null hypothesis is rejected ,i.e. there is a statistically significant difference between the two groups in favor of the experimental group , and as shown in the table(4: (schedule)

The arithmetic mean and standard deviation of the two research groups in the achievement test

T -value and statistical significance			standard deviation	SMA	the number	the group
indication	Tabular	Calculated				
Function	2	4.542	3.53	30.8581	35	Experimental
			2.805	27.2	35	Control

This is in agreement with the study of Eddy&Shire,1994 And) Qatami and Mustafa ,2015And) Sultani ,2016And) wake up , 2017

-Habits of mind :to verify the second null hypothesis , which states that) there is no statistically significant difference at a significant level(0.05)Between the average scores of the experimental group that is studied according to the Eddy and Schaier model and the scores of the control group that is studied according to the traditional method of the Habits of Mind Scale

Therefore, the scores of the two research groups were monitored in the mental habits scale, which was applied at the end of the experiment . And by using the T-test for two independent groups, the calculated T value was greater than the tabular at a significant level0.05)As shown in the table(5 (Thus rejects the hypothesis of zero second ie there is a statistically significant difference between the two groups in favor of the group which follicular.

Table (5) represents the arithmetic mean and standard deviation of the two groups of research on habits of mind

	T -value		Degree of freedom	standard deviation	SMA	the number	the group
	Tabular	Calculated					
Function	2	5.24	68	6.65	67.94	35	Experimental
				8.82	58.14	35	Control

Interpretation of the results:

1- The strategic steps of Eddy and Shire, which require presenting the lesson in the form of confusing scientific activities for the student, work to stimulate thinking ,by linking concepts, imposing assumptions, resolving contradictions, and dealing with the concrete to reach the abstract) Afaneh and Youssef ,2009 :244 . (In addition to the role of the teacher to encourage learners in cooperative groups on the dialogue on the topics contained in scientific activities , participation has made members of the experimental group effective in the learning process , which gives the opportunity for everyone in building knowledge and awareness of the new realities, which helped to stimulate and regulate Aabanny knowledge of the students, which It contributes to improving cognitive achievement.

2- The strategic steps of Eddeshire that work on the multiplicity and diversity of activities, and the questioning that provokes the thinking of learners, the presentation of ambiguous positions to them and the questioning of their information, all of which may have helped to stimulate students' curiosity and curiosity .It also contributed to perseverance in reaching scientific results and concepts.

3- The practice of the students of the experimental group of the Eddeshire strategy steps helped in the development of the areas of habits of mind represented by reciprocal thinking and thinking flexibly and the application of previous knowledge in new situations, thinking in thinking.

4- The students' work in cooperative groups ,encouraging the teacher to have positive discussions and urging them to think about what they thought helped produce new ideas , which encouraged students to innovate, which is one of the components of mental habits .

Conclusions:

It can be concluded from the final results of the current search that Aasthaddam a specimen Valley and shire in teaching helped

1-Increase the collection in physics with the student data grade fourth scientific.

2-Developing some habits of mind that should be developed among students of the fourth grade of science.

Recommendations :

The researcher recommends the following:

1-Adoption of a model Valley and shire in the teaching of physics as it has a clear impact in the collection and habits of the mind of the students fourth grade science.

2- Include a Eddy and Shire model in the curriculum for teaching methods in the Faculties of Education and Basic Education.

3-Training teachers on the steps to implement the Accelerated Thinking Model.

The proposals:

1- Study the impact of Eddy and Shire's strategy on developing thinking skills such as creative thinking, reflective thinking and metacognitive thinking.

2- A study comparing not Stratjah Valley shire with other structural strategies and knowledge of their impact on achievement and habits of mind.

3- Study the effect of Eddie and Shire's strategy on the development of some multiple intelligences and for other academic stages.

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