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Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía,
Linguística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Año 35, mayo 2013 N°

89

Revista de Ciencias Humanas y Sociales
ISSN 1048-1037 (ISSN-e: 2577-6228)
Depósito Legal pp: 100240320147



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The effectiveness of employing the molecular representation strategy in the development of information Generation skills in the chemistry of second grade students in Intermediate School

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Abstract

The research aims to demonstrate the effectiveness of the molecular representation strategy in developing the skills of generating information in chemistry in the second grade students. The sample chose the average female students for girls and the chosen ones, namely (46) students, The total number of students in the experimental group (23) students studied according to the strategy of molecular representation, and the total students control group (23) students studying according to the usual method. The two groups were rewarded with months of age, previous information testing, and skills for generating information which consist of (28) paragraph. After the researcher completed the research experiment, the test of the skills of generating information found that the superiority of the experimental group in the development of skills to generate information on the control group taught according to the usual method.

La Efectividad De Emplear La Estrategia De Representación Molecular En El Desarrollo De Habilidades De Generación De Información En La Química De Estudiantes De Segundo Grado En La Escuela Intermedia

La investigación tiene como objetivo demostrar la efectividad de la estrategia de representación molecular en el desarrollo de las habilidades para generar información en química en los estudiantes de segundo grado. La muestra eligió el promedio de estudiantes femeninas para niñas y las elegidas, a saber (46) estudiantes, el número total de estudiantes en el grupo experimental (23) estudiantes estudiados de acuerdo con la estrategia de representación molecular y el grupo de control total de estudiantes (23)) estudiantes que estudian según el método habitual. Los dos grupos fueron recompensados con meses de edad, pruebas previas de información y habilidades para generar información que consisten en (28) párrafos. Después de que el investigador completó el experimento de investigación, la prueba de las habilidades de generación de información descubrió que la superioridad del grupo experimental en el desarrollo de habilidades para generar información sobre el grupo de control se enseñaba de acuerdo con el método habitual.

Research problem

The philosophy of education emphasizes the importance of curriculum development and modernization, which requires the development of teaching and learning methods, focusing on students as a center for learning / learning, and improving learning / learning is linked to its ability to shift from the traditional Which focuses on indoctrination and the transfer of information to education that raise the desire of students to discover through different attitudes and educational / learning activities, and this is confirmed by the structural theory in building the learner to know, understand, and use on the other hand. Intellect is the heart of construction which requires the teaching of science to understand and make learning meaningful, retain it, use it in the personal and social perspective and employ it in new learning situations, so that the learner is a good citizen with a scientific, mathematical and technological culture and responds to issues and problems.

While recent trends emphasize the need to adapt strategies, methods and methods of teaching to make the impact of the student focus of the teaching process, but it is still mostly rely on conservation and transmission, so the subject of generating new ideas to solve problems of mind, To stimulate students' interest and willingness, to stimulate their talents, to enhance their imaginative and creative capacities, to reduce their intellectual inactivity and to encourage the greatest number of them to find new ideas and use higher mental abilities (Analysis, synthesis, and evaluation) and makes the teaching and learning activity focused on students, which may stimulate their thinking and may develop their intelligence. Thus, attention has grown to the development of information generation skills, or so-called thinking skills, Which is a type of thinking that includes two dimensions after exploration, in which the individual interprets specific information, and after innovation, in which new information is generated.

The science of chemistry is a science based on the partial theory of the material and the associated changes, so students consider it a complex and difficult to abstract nature, especially in the equations, concepts and formulas, which led many of them to move away from his studies, but progress in various areas created. Several solutions have emerged for many of the previously intractable problems, including the problem of abstract nature in chemistry. As a result, modern strategies have emerged in the teaching of chemistry that emphasize the construction of the understanding of chemistry. The partial details are quickly forgotten unless they are included in the system of reservation. Understanding basic principles contributes to the more effective transmission of the impact of learning, so that the study of chemistry with its symbols and formulas is available and accessible to all.

The strategy of molecular representation is one of modern strategies in learning concepts, formulas and chemical equations. It stems from structural theory. It depends on the depth of meaning in understanding chemical phenomena and concepts.

This strategy has several names, including "the representation of the particle," or "the molecular level, the molecular model. Based on the past researcher believes that the strategies used in the teaching of chemistry is the most important problem in the weakness of students in achieving the objectives of teaching chemistry, Therefore, the problem of this research is the lack of use of chemistry teachers of the desired teaching strategies that stimulate students and raise their motivation and stagnation on traditional methods without fun, excitement and interaction, which called for the

use of the strategy of molecular representation. The problem of research is therefore the following main question (the effectiveness of employing a molecular representation strategy in developing information-generating skills in chemistry).

The importance of research

The aim of education is to build the learner in terms of general (mental, emotional, skill, physical ... etc.) to face the developments taking place in our time, and given the multiple requirements of life and the escalation of the pace of knowledge explosion, It is necessary for education to go beyond providing students with information to the level at which the individual is in a position to know himself and to develop his or her potential to acquire advanced knowledge in a stable manner by providing the ability to analyze, discover and infer, And to have the capabilities that he must possess to keep abreast of social, rapid and renewable variables. Information generation skills are the ability to use previous ideas to generate new ideas, where generation skills include the use of prior knowledge to add new information It is a structural process in which new ideas and prior knowledge are linked by a coherent construction of ideas that links new and old information (Marzano et al., 2004, 216).

That is, it is the thinking abilities that arrive at new ideas of information that are already available and existing but added new relationships and connections .It is also about finding solutions to the problems assigned to the student as tasks which he has not been exposed to before. But added new relationships and links (Asfour, 2011), and is a solution to the problems assigned to the student as tasks, which have not been exposed before, often through the integration of the data available to him in his knowledge structure to reach this solution (Abdeljalil, 2009 491). Information-generating skills help to consolidate the concept of lifelong learning, gain new ideas through past experiences, and help train students to produce information and ideas rather than receive them ready, and help to practice and the development of different types of thinking such as creative thinking, criticism and reflection, and promotes self-confidence in the student and this feels the importance of his role in the production of ideas and solutions (Asfour, 2011 40).

The educators emphasize this by calling for diversity in the methods, strategies and methods of teaching, so that the teacher is knowledgeable about what works for each position and positions of teaching and materials, it is not sufficient scientific proficiency, but needs special expertise, and follow

developments and developments science And continuous training. (Nahlawi, 2001, 174). These strategies can provide teachers in schools with clear tools with clear teaching objectives that make learning more exciting, easier, more interesting and more effective, and help them develop positive attitudes towards the learner's impact and And helps them to develop positive attitudes towards the learner's impact and transform him from a passive recipient into an active and active learner in generating knowledge and reaching new knowledge, and appropriate solutions to clustered problems. (Qatami, 2013 54) The researcher believes that it requires the teacher to renew his strategies in the light of experiences And that the good way of teaching leads to the success of the teacher in his work and influence in his student influence that makes them interact with the lesson material, and think and translate their ideas. It is the vehicle of science and knowledge, as appropriate to the educational situation, and consistent with The learner's age, intelligence, abilities and tendencies, the goals achieved through them were wide and useful.

Molecular representation strategy is article constructivist philosophy based educational events that clarify and represent particles filtration elements involved in scientific phenomena in chemical equations avatar molecularly representation using atoms and particles to reach the interpretation Their flour which increases the ability to imagine the precise entities involved in chemical phenomena symbolism which are based on three levels of virtual level, symbolic level, molecular level). (Rajab, 2012:16), and to clarify the elements in chemical equations phenomena and molecularly representation through the use of molecules and atoms and how they relate to and get clear outputs. Baluchi Saidi and Ambo), 20009:512),) Which students can move between levels of thinking, enhance students ' enthusiasm for learning as well as practical applications and the possibility of molecularly representation, develop students ' ability to imagine mutual interactions between atoms and molecules in the chemical concepts building minutes practice, develop thinking skills Various Visual Visual perceptions through strategic expansion included a new concept for students by applying the concept in new situations in the daily life of the learner, lead to changes in students ' ideas than ninthgrade learning, address learning experiences which eliminate many misunderstandings Generated by the students in art education, increase students ' skills and abilities to learn and investigate and solve problems. (Rajab, 2012:29).

The current study is important in being:

-provide information on using molecular representation strategy article in

science in General and particularly chemistry teaching may help supervisors in setting up training courses for teachers of chemistry.

-The study provides a test of skills to generate information in chemistry would benefit graduate students and researchers in the areas of science and chemistry when preparing them for their tools.

- The study provides a model for how to teach according to the molecular representation strategy article could benefit teachers in developing the skills to generate information in chemistry.

-This study is expected to open for an d later research studies have derived variables and outcomes.

Aim of research

research seeks the following goal: effectively employ molecular representation strategy in developing the skills to generate information in chemistry second grade students average. IV: The research hypothesis Research Hypothese: (no statistically significant differences at a level (0.05) between experimental groups and students average officer in developing the skills to generate information in chemistry second grade students average).

Limits of research

1. Second grade students average in Baghdad/Karkh third School year (2018 – 2019) /.

2. Chemistry grade average, last year's Edition (2017 – 2018).

Terms definitions

1. molecular representation strategy: defined by both (Wa, Krajcik * Soloway, 2001) as teacher in teaching method of materials in a way to achieve the desired educational objectives and represent an interpretation of chemical phenomena in describes how to arrange the movement of particles Atoms and ions. (Wa, Krajcik * Soloway, 2001: 11).

(Al meqbali, 2003) as the procedures used by the teacher to help him in his mission in an orderly and acceptable educational output serial in the light of the possibilities available, care to explain chemical phenomena describes how molecular movement and arrangement of atoms, ions, chemical phenomena are expressed Using spherical statues and illustrations at the molecular level. (Al meqbali, 2003:10)

the procedural definition: it's a group of selected procedures based on constructivist philosophy of clarification and filtration of particles represent elements in in scientific phenomena in chemical equations avatar mo-

lecularly representation using atoms and molecules to reach the accurate interpretation based on three levels of virtual and symbolic level level) and molecular level.

Generating Data Skill

complex human phenomenon, and the ability of any vehicle mindset as an activity by certain individuals at their age and that appears in the form of produce literary or artistic or scientific or technical or other forms of production in the fields of knowledge and technology, and this activity is characterized by innovation and creativity, and make something new. Or the final wording and vocabulary items. (Mohsin, 2005:118) ('Aathra., 2012) thinking beyond information available to fill in the gaps, adding that it represents the ability to generate a large number of diverse ideas and alternatives when responding to a certain gender; to find a relationship or hypothesis among alternatives and ideas to come up with an answer or reasonable outcome interpreted Uncertainty about the problem. ('Aathra., 2012:186) (Alsedey, 2014) ability to develop hypotheses to solve math problems or routine, non-routine, and predict the outcome in the light of the data on these issues, and produce a number of solutions, and the diversity of ideas these solutions with the scarcity of these ideas among peers and production relations and unfamiliar scientific styles (AL Saidi, 2014:197).

Procedural definition:

process of generating additional ideas by inference and prediction, where the learner to integrate information and summarizing and rebuild what has been generated for a solution and a set of skills enables the learner recruitment information stored in memory and try to employ them to respond Specific knowledge data, or look for signs and indicators in educational position with his information as a learner and linked to the concepts or solutions or generalizations or conclusions or recommendations or suggestions.

Background and previous studies

Molecular representation strategy: molecular representation strategy is an educational package and order describes the structural representation of movement of molecules and atoms using spherical statues and drawings at the molecular level to imagine finer configurations within scientific phenomena and chemical equations. And interpreted, as it allows the student aldkaeiki level teaching out of the virtual level once ruled to deepen more in the article secrets and processes occurring in the aldkaeiki level,

as can clearly link with the symbolic level of phenomenon where symbols and chemical equations, chemical formulas, ‘Twas the numbers become symbols in chemical equations have clear meanings) EMBO Saeidi and Baluchi, 2009 512), and thus increases the virtual capacity of filtration configurations in science, and therefore can explain phenomena in virtual level symbolic level and molecular and also be capable of Convert symbolic equations to molecular level

1. Molecular representation methods article: select (Ambo Saidi and Baluchi, 2009:516 – 519) methods to molecular representation rule as follows:

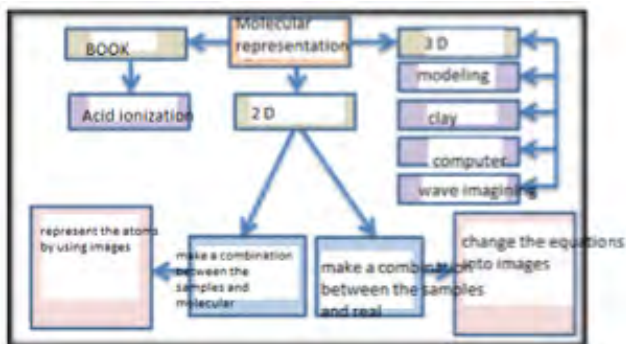
(1) three dimensional representations: Terms used in this way, 3D models or clay or computer programs to highlight the molecules and atoms allows for the teacher And learner opportunity fantasizing of atoms and molecules and also design 3D models.

(2) dimensional representations: in this way the learner depends on using circles and graphics representation of molecules and atoms and also use different colors to denote the types of atoms, and there are two dimensional representations.

A- merger between the symbolic levels: this way you can add illustration minute chemical equations avatar to become more effective in explaining movements and exchanges that occur at the molecular level during a chemical reaction, the numbers in the equation. What is the code number of particles, and post the code number of atoms, assist in the process of balancing equations, detect errors in how atoms with each other within the molecular formula. The researcher show in the following figure is an example of using models to illustrate the integration between level (molecular and symbolic)

. B- combining of virtual levels: this is type when using the captured image or set of chemical phenomena and clarify the molecular components of items Involved in this phenomenon and direct link between the phenomenon and what happens at the molecular level which leads to interpret accurately the causes of the phenomenon and the ability to imagine. Researcher in the figure below shows an example of a molecular explanation lay in components and mechanism of action of ‘the ‘bomb calorimeter.

(3) verbal representations: to describe the phenomena ostensibly without depth filtration levels, helps keep the lurks learner in virtual level which enables it to configure misconceptions. It can convert written language which makes the phenomenon of a language depends on the virtual level filtration terminology used language as molecules and atoms.



Molecular representation strategy goals:

first: to develop the capacity to imagine and mental picture of compounds and chemical reactions:

the use of molecular representation strategy with its Visual potential, build a mental image of clear and virtual broadening students for vehicles Chemical and process that is seen by the naked eye so the mental image basis for understanding the chemistry which consists of several micro entities such as atoms and protons and electrons that become difficult mental concepts digestible dry unless they have a clear mental picture can then student Deal with it clearly, so the 3D representations whether built electronically or by clay or any other representative material undoubtedly help students develop mental images for filtration in science and configurations on the switch and change in structural combinations for producing compounds New chemical mergers and this is confirmed (Al meqbali, 2003:7).

Second linking the three levels of Chemistry (symbolic virtual): Dalton has Tasker section *, 2006)) levels of thinking into three levels which are tangible and symbolic and molecular level, and stressed the relationship between the three levels and that some students during class are virtual level angle and find it difficult to translate the views that law in the laboratory to Symbolic equations or molecular representations. Therefore, teaching at the molecular level allows the student out of the virtual level once ruled, to delve deeper into the mysteries of art that occur at the molecular level as who can weave the symbolic level of the phenomenon. Where the symbols and chemical equations and formulas, numbers that precede the symbol in chemical equations have clear meanings Tasker * Dalton, 2006:141-159)).

Where practical tests conducted by the teacher within the school laboratory and see the students and explain her to keep her playbook and symbolic equations and molecular representations are the best way out of the virtual world-level student molecular and understand it. And also a way to represent chemical equations at the molecular level, linking the three levels. The researcher adds in the following figure is an example of absorber interaction (interaction of citric acid and sodium bicarbonate) is a type of interactions which are accompanied by a decrease in energy could be taught through linking the three levels through the following:

1. the virtual level: and watch the experiment in the lab. And measure the temperature difference between reactants and products for fingerprinting and note low temperature and then take pictures of her.

2. the symbolic level: write an equation and interaction of citric acid with sodium bicarbonate, taking the weight of the chemical equation.

3. molecular level: it is a representation of the scanned picture of atoms and particles to explain what happened to the phenomenon, as if we were in this reaction and chemical equation is represented for both citric acid and 3 moles of Sodium bicarbonate in reactant and sodium citrate molecule of sulphide in water and three carbon dioxide particles being molecularly representation.

Third : improve absorption of chemical concepts:

where you simplify how chemical reactions occur and how Exchange atoms and Atomic groups in configure vehicles. And also simplify how chemical processes occur in the human body as digestion and respiration, brain and vital processes in living cell as absorption and capillarity and also proved a strategy in the teaching of chemical equations and weight related concepts such as equal Article, number of moles. This is confirmed in a study (Al meqbali, 2003), (Tasker, 2014: 16-27) Sim, J.H., and Daniel, E.G., 2014: 15-36) . (Hilton, A.G., and Nichols, K.,2011:2215-2246)

Correcting the wrong chemical concepts:

(Al meqbali, 2003:7) that the representations in molecular level works to correct many conceptual mistakes. The number of pupils believed conceptual errors regarding the worlds of atoms and molecules where they think water grows when it turns to steam because of increasing size and the water molecule in the solid state is more solid in liquid and gaseous state. And also interpret melting salt in water that the disappearance of granulated salt without addressing the concepts of ionization and attraction. For almuthalath your concepts error ink explains the spread of ink in water as the result of coloring the water molecules in ink and the ink was not his

molecules but it is color or hue of Tan by water molecules. But molecular representation strategy describes what happened to ink this is confirmed in a study (Tasker, 2014:16-27)

Skills of information generation:

the generation of information skills are ‘ one thought patterns which exercises the student a set of mental processes such as the development of hypotheses and forecasting in the light of data and fluency and flexibility and identify errors and inaccuracies. (Edin and Ramadan, 2007:130), as well as the ability to generate a large number of alternatives or ideas or information or problems or other acquaintances as responses to certain stimuli taking into account speed and ease. (Abdul Aziz, 2009:157) researcher concludes from the above:

-the skills to generate information on the use of previous ideas to generate new ideas.

-Prepare the way for the solution of problems faced by students in the classroom and to make decisions.

-Skills development require information generation km from previous information new knowledge discovery facilitates coordinated, coherent bridge-building of knowledge of the student.

-A pattern of thinking combines exploration and innovation, and contains a number of skills. Fixes (two Pugs, 2009) after thinking and skills involved in each – information – generating skills as follows: by exploration, Kit contains a number of skills. Fixes (two Pugs, 2009) after thinking and skills involved in each – information – generating skills as follows: by exploration, and includes:

1. development of hypotheses: a way to interpret a phenomenon or problem, preliminary conclusions are subject to examination and experimentation, in order to communicate an answer or The result of interpreting ambiguous situation or problem, and these hypotheses serve to predict.) Al-Khatib, 2013:88)

2-forecast in light of the data: the ability to read the data and information available, and the inference which is further within dimensions: Zaman (inferred from available data, potential data trends in other period), subject (transfer or application ideas Or existing principles and associated with a subject, content or other subject has nothing to do with the original topic), sample and society (try to describe a society based on the sample data or vice versa). (Two Pugs, 2009, p. 234).

By innovation, and includes: determined forms of verbal fluency: fluency, fluency, fluent shapes.) Mustafa, 2011:78) flexibility: the ability to gener-

ate a variety of ideas or new solutions is not the kind of routine ideas and solutions, and directing the course of thinking or converted in response to dramatic change or the requirements of the position. And determined forms of flexibility: Adaptive flexibility, freedom from deadlock, reinterpret information, automatic flexibility.) His Excellency, 2011:291) (Abu feathers et al, 2009:240)

information generation skills properties

researcher finds that the information generation skills make the student an actor in the process of teaching and learning through shared generating ideas and knowledge, and build a bridge of knowledge among its previous knowledge, Built from new knowledge, and develop the ability of students to think, resilient and give multiple responses and variety, imagination and thinking through his hypotheses and search for solutions, and create student flexibility in new ideas and opinions.

Previous studies:

A • molecular representation strategy studies :

1 • blouses and others: (2008) Teichert and Other study aimed at identifying the implications of the context of molecular level student ideas regarding water solutions, covering the study sample (19) students from General Chemistry Division of Community College, where researchers used descriptive analytical study tool included personal interviews, the results indicated that students are able to represent true in some contexts at the molecular level may remain inert knowledge in other contexts, the researchers said. The importance of context at the molecular level to determine students ' ideas and express them, because its effects on training design Reese among students in their understanding and application development in new situations. ((Teichert and Other, 2008:1095-1114)

2 • stains wetalngar:(2007) Stains and Talangure the purpose of this study is to design a way to verify the patterns and thought processes used by undergraduate students starting in the classification of chemical elements and compounds mixtures based on representations of their particles, where The researchers used a descriptive analytical, covering the study sample (874) undergraduate students beginning, where divided into six different groups represent different levels of preparation in chemistry, the researchers used study tools including questionnaires and interviews, the results indicated Promote certain naïve thinking patterns rather than to weaken through training on discipline and order. (Stains and Talangure,2007: 643-661).

B. Generate information skills covered:

1• Sa'di (2005): this study was conducted in Egypt format to define systemic entrance in developing the skills of information generation. The study was limited to a sample of students at the grader, my unit (article – static electricity) in the first semester of junior grade science book for the school year 2003/2004. And to measure and evaluate information from generating skills (fluency skill-skill set assumptions-Money skill skill identify errors and inaccuracies: confusion between opinion and fact, fallacy in reasoning or conclusion). And measuring thinking skills over knowledge: (skill of planning and control-skill-skill evaluation). Int picked a sample of second grade students divided randomly into two secondary and one other pilot officer, researcher study tools by teaching units, and teaching the reformulated units using portal pilot group of systemic teaching units themselves as Namely, the book of the Ministry to control group in the normal way, and application study Teaching of experimental groups and control subjects, and processing the results in light of walbadi tribal applications study tools, the study resulted in the following result: superiority of the experimental group who use systemic entrance in developing the skills to generate and evaluate information and thinking over knowledge. (Al-Sa'di, 2005:5)

(2.(Kaur, 2016): research aims to know the impact of such strategies and the cube in expressive performance and develop the skills to generate information on fifth graders, the sample amounted to search (100), (33) students studying material expression similar strategy, (34) students studying A material expression cube strategy, and (33) students in the control group that taught traditional expression, people were chosen at random, either search tools were: to measure the tests series in expressive performance, and other tool: test prepared by the researcher to measure Develop the skills to generate information for students Research sample, the number of paragraphs (50) distributed among the substantive questions (multiple choice) and almkalet questions taking into account the requirements of each type of wording, and have produced research groups of results including: than students who studied material expression With similar strategies and cube on the control group which had examined the article itself in the traditional way in expressive performance and develop the skills to generate information. (Al-shammari, 2016: y-t)

Aspects of the utilization of previous studies

1. identify the problem by displaying and benefit studies highlight and its memorization.

2. how to start searching the necessary steps that the researcher while performing the experiment, and then writing classes search.

Methodology

experimental design: design pilot groups were selected and officer and controlling each other, and the design can be plotted as follows:

Table (1) outline of experimental design

Post test	dependent variable	Independent variable	Equality of groups	groups
information generating skills test	information generating skills	Molecular representation strategy	Age- - Previous grade	experimental
		Traditional way	- Skill of information generating skill	control

Research community and appointed

A-research community: the research community in all second grade students in junior and senior high schools for girls day governmental General Directorate to raise Baghdad/Karkh third school year (2018-2019).

B-sample search: medium was selected the horses for the girls of the Directorate General for raising a third of Karkh vertically represents a sample search for the following reasons:-the researcher familiar with the reality of the school and its potential to make the search experience.

C-five people at school for second grade average, giving researcher opportunity to random selection for the two groups (experimental and control), and was selected by random assignment Division (a) of the pilot group involving (23) a student studied according to molecular representation Strategy Division, (b) Control group which included 23 freshman and studied the regular way, bringing a sample search (46), (23) students in the experimental group studying article on style discovery router, and 23 students in the control group which will examine the article itself in the traditional way.

D- Equal groups: the researcher found a number of variables that affect

the experience, for it had identified all averages of variables: (chronological age in months, and previous knowledge and skills test information generation, intelligence, and then compute the variance and value (v) and featured items are equivalent In these variables.

research requirements:

1. to identify topics, selection, basic tasks in determining educational goals, current research requests a set of requirements for the purpose of implementing the research procedures and kits:

- a. identify scientific material.
- b. formulating behavioral objectives.
- c. preparation of teaching plans.

research tool:

1. skills test information generation: current research objectives included generating skills recognition information search sample members, researcher build skills test information generation fits the school as this test consists of (34). Drafting of instructions for answering test passages clearly generate information skills for students to avoid mistakes.

instructions mode: test was corrected after exploratory sample students answer the paragraphs where you select two points for each test item and get the student in the first degree if it is true, as well as take on second degree if it is true, if the first error, no second takes.

-Honestly gauge: skills test is set up to generate information on the initial image, which included (34) was displayed on the Panel of arbitrators and to explore their opinions about the validity of the test paragraphs researcher must have delete (6) paragraphs and modify each of the test becomes a component of (28).

-The first exploratory application: after the test preparation skills test paragraphs generate information, exploratory sample test plate (30), are non-empirical and divisions division officer chosen by random way, exploratory experiment was conducted to select paragraphs

-The test. Select a time scale: applied skills test information generation on an exploratory sample non-search sample raw-consisting of (30), for the purpose of determining the time required to answer the test paragraphs, and the clarity of its paragraphs, instructions, diagnosis of ambiguous paragraphs thereof, and after extraction of the end time of the first student Answer, and another student (35-45) minutes, range (40) minutes.

-The second exploratory application: the test is applied on a sample second reconnaissance of (100), for the purpose of analyzing test paragraphs, and make sure its sycho metric. After patch, cracked vertebrae, test to find the

following:

a-transactions easy and discrimination: -and found that easy transactions ranging from (0.31-0.76), thus all paragraphs with an appropriate difficulty level, considering (bloom, 1983) that test paragraphs are acceptable, if the coefficient of difficulty between (0.20 – 0.80) (bloom, 1983:107).

b-coefficient distinguish each paragraph of the scale: he found that the distinction between transactions (0.30 – 0.85) in accordance with criterion (Ebel) which indicates that attitudes are good, if the discriminatory power (0.20-0.80).

Reliability test: verifying constancy skills test information hash method generation halftones: fragmented paragraphs skills test information generation into two parts, the correlation coefficient was calculated Pearson (Person) using the equation (Gutman) (0.69), this result shows test halves link.

Procedures for the application of the experience:

the researcher initiated the actual application of experience 4/3/2018 day having been set up physical inputs and adjust some variables that can affect the experience as lighting and noise. Etc and locate teaching and experimental brigade groups lab school. In the light of the following:-

a-teaching plans for the pilot group as a molecular representation strategy in teaching chemistry.

b-teaching schemes for the control group by following the usual method in teaching chemistry.

-Experience in 16/5/2018 after it took full classrooms and school management cooperation had great merit.

results

First, display the results: for the purpose of verifying t hypothesis which States that (no statistically significant difference at a level (0.05) between the average grades of the students who study on molecular representation strategy approved and the average score for students who study on the usual way in the development of skills Generate information on chemistry second grade students average). Researcher information-generating skills test application in chemistry after preparation on experimental groups and control subjects showed the results shown in table (3) the existence of statistically significant difference at the level indication (0.05) between research groups with the arithmetic mean of the first group (39.96) And the arithmetic mean of control group (33.34) after using the t-test for equality. Back to t-value calculated is greater than its indexed appeared equal (5.9)

and is larger than most table (2.069) at a level of significance of 0.05 and degrees of freedom (44). This shows a significant difference statistically between the average score for students who study on molecular representation strategy approved (experimental group) and the average score for students who Study on molecular representation strategy approved (experimental group) and the average score for students who study the way normal skills test information generation and for experimental group thus rejects the zero hypothesis.

Table (2) the arithmetic mean and variance and t-value calculated for the experimental groups students grades and officer in the information-generating skills test

Significant identity	T value	Standard deviation	mean	Student number	group
Significant	5.9	9.27	39.96	23	Experimental
		8.579	33.34	23	Control

Results and discussion

them clear through the researcher's findings that use molecular representation strategy positive impact in generating information skills second grade students average, due to the following reasons:

1. the students were given the opportunity to interact and to understand Chemical concepts through drawing and representation of the concept is a mental picture that consists of features and common features between these things.
2. the molecular representation strategy drove the student of module which controls the textbook and classroom and school life in the shade a shadow, requesting in this strategy are no longer passive recipients of what vocation school, but active participation in learning and responsible.
3. molecular representation strategy encourages students to be more flexible to endure because of their vision of the subject per multiple aspects, and they develop have thinking skills.
4. the students helped connect the molecular nature of matter and phenomena and chemical symbols.
5. provided an opportunity for students to build molecular representations help them understand and interpret chemical phenomena at the molecular level properly.

Conclusions:

1. the molecular representation strategy have clear impact on developing the skills of information generation by students.
2. the teacher guides include information about how to use the traditional rule representation strategy in teaching chemistry.
3. the topics considered by the researcher in this research fit taught molecular representation strategy than the traditional method.

Recommendations:

1. the need for molecular representation strategy guidance in teaching chemistry for second grade students average; its demonstrable impact on the development of skills information generation have.
2. the need to pay attention to the use of representation strategy article in the teaching of chemistry as an effective learning methods that achieve many objectives of teaching chemistry.
3. emphasis on training courses to train teachers in service on applying molecular representation strategy in developing the skills of information generation.

Suggestions:

1. to study the effectiveness of molecular representation strategy in other variables such as the acquisition of scientific concepts, creative thinking, critical thinking, deductive thinking.
2. study the impact of molecular representation strategy to acquire altabh tendencies and positive trends towards chemistry.
3. to study the effectiveness of molecular representation strategy in alternative scenarios for modification of chemical concepts.

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**UNIVERSIDAD
DEL ZULIA**

opción

Revista de Ciencias Humanas y Sociales

Año 35, N° 89, (2019)

Esta revista fue editada en formato digital por el personal de la Oficina de Publicaciones Científicas de la Facultad Experimental de Ciencias, Universidad del Zulia.

Maracaibo - Venezuela

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