

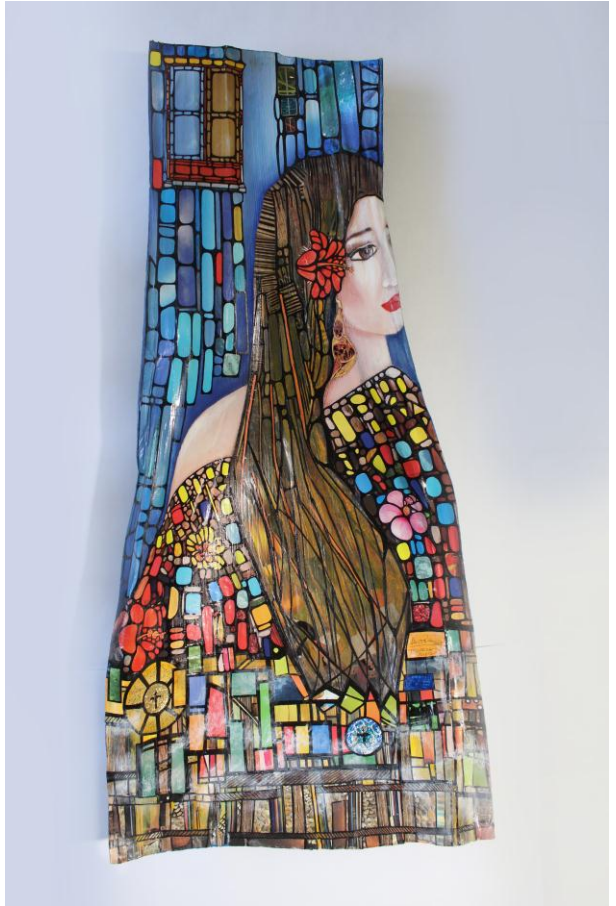
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Effect of (Joyce & Weil) and (JJK) in the skills of students

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Abstract

The research aims to identify the effectiveness of the strategies (Joyce & Weil) and Jay (JK) via a constructed objective test of the classification skills of the multiple choice type. As a result, the calculated T value is greater than the scale, and the difference is statistically significant for the first experimental group in the average post-test scores of the classification skills. In conclusion, Students desire to learn the best methods according to the steps of the strategy in the presence of a teacher facilitator and organizer of the educational process where crystallized chemical concepts in their minds.

Keywords: scientific, mental, Joyce & Weil strategy.

Efecto de (Joyce & Weil) y (JJK) en las habilidades de los estudiantes

Resumen

El objetivo de la investigación es identificar la efectividad de las estrategias (Joyce & Weil) y Jay (JK) a través de una prueba objetiva construida de las habilidades de clasificación del tipo de elección múltiple. Como resultado, el valor T calculado es mayor que la escala, y la diferencia es estadísticamente significativa para el primer grupo experimental en los puntajes promedio posteriores a la prueba de las habilidades de clasificación. En conclusión, los estudiantes desean aprender los mejores métodos de acuerdo con los pasos de la estrategia en presencia de un profesor facilitador y organizador del proceso educativo donde los conceptos químicos cristalizados en sus mentes.

Palabras clave: científico, mental, estrategia de Joyce y Weil.

1. INTRODUCTION

The objectives of teaching science, including chemistry, in the light of modern trends are to acquire students scientific knowledge and scientific concepts in a functional manner and develop their mental abilities and creative thinking and meet their needs and attention to their tendencies and development of their scientific orientation and their manual skills and instilling the spirit of faith in the greatness of the Creator and appreciation of the results of scientists who contributed to the service of humanity (Samurai, 2005). (Joyce & Weil's) strategy is a set of actions that help the learner to conduct an active, conscious and careful mental inquiry about his convictions, conceptual

knowledge and actions in the light of the reality in which he works. He can solve practical and scientific problems and show implicit knowledge to the surface of consciousness in a new sense. Able to form his own theory of practices desired to be achieved (Schon, 1983). The Joyce & Weil strategy is a method of teaching that relies on collecting information from multiple sources so that the students share it as a collective project, and then the teacher and the students plan together so that each individual in the group is assigned specific tasks. Students are directed to a variety of sources, which provide them with meaningful activities. The students then analyze the information, which is presented in the classroom or the laboratory. The evaluation is conducted by the students themselves (Abuamira, 1997). The Jay-JK strategy is one of the brain-based learning approaches that recent trends in learning and learning indicate to learners, stressing that giving learners an opportunity to reflect on their learning contributes to their ability to track and evaluate the course to their own learning, thereby enriching all aspects of learner learning, both cognitively and spiritually (Florez, 2001).

Raziqi and others, 2015, believe that Jay JK is a learning portal designed to help learners self-organize their learning, and is based on training learners on how to think systematically in sequential steps to perform tasks or solve problems; including by defining learning goals, Explain what they do or strategies they use, how they get answers, and follow up and evaluate their own learning. The skill of classification is one of the processes of science helps to put things in groups according to a certain system in our mind, which requires first to examine these

things and the separation of things that have common characteristics and put them in a group of its own to have a number of gatherings, and if nothing remained unclassified alone or put it under the title of miscellaneous. The importance of classification skill is that it helps students to organize the environment in which they live and establish many meaningful relationships, and they facilitate the process of storing and retrieving information and access to generalizations, and it helps students understand the nature of things and their components. Their characteristics also greatly help in the development or development of concepts. (Qawasim and Abughazala, 2013). The importance of this skill is that it organizes and facilitates the process of remembering, in addition to being a necessary skill to build concepts in the cognitive structure, which is a prerequisite for thinking, and the absence of practical aspects or limitations in learning concepts makes it theoretical acquisition more difficult. In spite of the fact that the mental picture is the most important, there is a need for the symbolic image to complement the mental image, without which the concept becomes ambiguous (Marai, and Alhila, 2002). The research aims to identify:

1. The effectiveness of both Joyce & Weil strategy and (Jay J. K.) in the classification skills of students in the fourth grade scientific.
2. The effectiveness of Joyce & Weil's strategy and Jay J. J.'s strategy in acquiring chemical concepts among fourth graders.

2. LITERATURE REVIEW

For the purpose of verifying the objectives of the research, the following two hypotheses were formulated: There are no statistically significant differences (0.05) between the average scores of Joyce & Weil students and the average grade of students who study the Jay J. K strategy in classification skills. There are no statistically significant differences (0.05) between the average scores of students who study, according to a strategic strategy (Joyce & Weil) and the average grade of students who study according to the strategy (Jay J. K. in the acquisition of chemical concepts. Research limits: - The research is determined as follows:

- 1) Fourth grade students of the General Directorate of Education Baghdad / Karkh first.
- 2) The first semester of the academic year 2016-2017.
- 3) Chapters (I, II, III) of the book of chemistry for the fourth grade scientific.

2.1 Terminology

Strategy (Joyce & Weil): Know it Slavin (1980), is a general classroom organizational plan where learning occurs through a collaborative inquiry group, discussion, and information collection by

students choosing partial topics from a general theme chosen by the teacher and then organizing themselves in small groups consisting of (2-6) are members of each group. These groups share the subject among themselves, to be learned by the members of each group in preparation for the group presentation in front of the whole class. Each group's presentation is evaluated by the other groups and the teacher (Slavin, 1980). The procedural definition of the Joyce & Weii strategy: A method of teaching in which students learn in collaborative groups according to survey steps to collect, discuss and interpret information in a collective manner, to unify responses and present them to the rest of the groups and to evaluate the work of each group.

2.2 The strategy (Jay J. K): knew it

Fazey suggested an effective way in which the teacher can identify the shortcomings of each learner and determine the appropriate learning method and how to teach it better (Fazey, 2004). The procedural definition of Jay J. J.'s strategy is that the teacher's actions are to generate self-awareness of his/ her tasks, so that he/ she mentally reviews, analyzes, and reviews the formation of new knowledge and experiences that enhance the modification and development of his / her teaching practices. It is a mental process whereby objects are placed together in groups to make them meaningful (Qawasim and Abughazah, 2013). The procedural definition of skill classification: - The skill of collecting things according to the characteristics and qualities common and measured by

the degree obtained by the student from his answer to the test prepared for this purpose. Acquisition: Samara and Abdulsalam defined it as "primary learning of the association between the stimuli and the response, which means that the neutral stimulus begins with the unconditional response and thus becomes a policeman who snatches a policeman and takes away the policing response." (Samara and Abd al-Salam 2008: 43). Scientific Concepts: Rizouqi defined them as "the group of objects and symbols that are grouped together on the basis of their general characteristics or common characteristics, which can be combined into one category and may be referred to as a particular name or symbol" (Rizouqi, 2015: 12). The procedural definition of acquisition of chemical concepts: A mental process that leads to the impression of the image of the concept and its meaning in the mind of the learner, measured by the total degree obtained by the student of the answer to the paragraphs of the test of acquisition of chemical concepts prepared by the researcher for this purpose.

3. THEORETICAL FRAMEWORK

First: Joyce & Weil strategy:

Strategic Steps (Joyce & Weil):

- The first stage:

Students may face problems with their thinking. This problem may be presented verbally or in real experience, and may already exist or be provided by the teacher. This problem generates curiosity, research, and observation, assessment of attitudes and formulation of questions that make the problem solvable.

- The second stage:

The groups give their responses to the problem of the study, and the teacher draws students' attention to the differences between their responses to the problem and asks them some questions such as:

- What procedures or examples do they follow?
- What do they know about this problem?
- How do they search?
- What sources do they rely on to collect information?

- The third stage:

Students formulate the problem themselves, define it, identify the roles of each student in the group, and the duties that each of them does.

- The fourth stage:

Determine the general plan of the students to search and collect information, whether the search individually or in groups within or outside the classroom.

- The fifth stage:

Students analyze the information they have obtained and present the results of their work.

- The sixth stage:

Evaluate each group of solutions they have reached through the goals they seek to achieve.

- The seventh stage:

The role of the teacher in the implementation of the Joyce & Weil strategy: The teacher's strategy (Joyce & Weil) requires a different role from the traditional learning, which always focuses on the teacher being the source of information for the students. Designated for the student when necessary, and a feedback provider when needed (Adler, 1997).

The role of the teacher in the implementation of this strategy is:

1. Facilitate Group Operations.

2. Intervenes in the work of groups to rationalize their capacity in effective educational activities.
3. Direct learning activities to achieve learning objectives.
4. Help learners to create a research plan.
5. Help students and guide them to sources of information and methods of data collection and analysis.
6. Helps students to a minimum if the group is not able to discover the solution, so that the survey will continue uninterrupted (Artzt & Newman, 1990).

The role of the student in the implementation of the strategy (Joyce & Weil):

The role of the student varies according to the Joyce & Weil strategy, depending on the role he will play in his group. He is not a negative recipient as he is in traditional education, but he plays other more effective roles under different social circumstances than traditional routines. Noah emphasizes the importance of the role of the student under the Joyce & Weil strategy. Although the teacher provides the problem, it is the result of the students as explorers, they must identify the problem and dictate it in their own language, and they must collect data, classify ideas, study consequences, and adjust plans according to their findings (Noah, 1993). Gimenez notes that the

role of students under the Joyce & Weil strategy is determined by asking questions, making appropriate assumptions, designing plans for resolution, classifying observations, and producing their findings by providing justifications, evidence, and convincing evidence (Gimenez, 1999).

Second: the strategy (Jay J. K.):

Strategic Steps (Jay J. K.):

1) Good planning of teaching: through careful analysis of the content of the lesson and its components, the good identification of the teaching objectives, the selection of the most appropriate teaching strategies, means and educational activities of the lesson, and clarify the procedures that will follow to achieve the objectives identified and identify the methods of assessment that will be used to verify the extent Access selected targets (AlKaabi & Jowmer, 2018).

2) Review and evaluation of the teaching plan and its various elements in light of the criteria of good schemes, and the plans of colleagues.

3) Implementation of teaching as described in the lesson plan, with the good use of basic teaching skills such as: the formation of learners, the organization and management of the classroom, the discussion of learners.

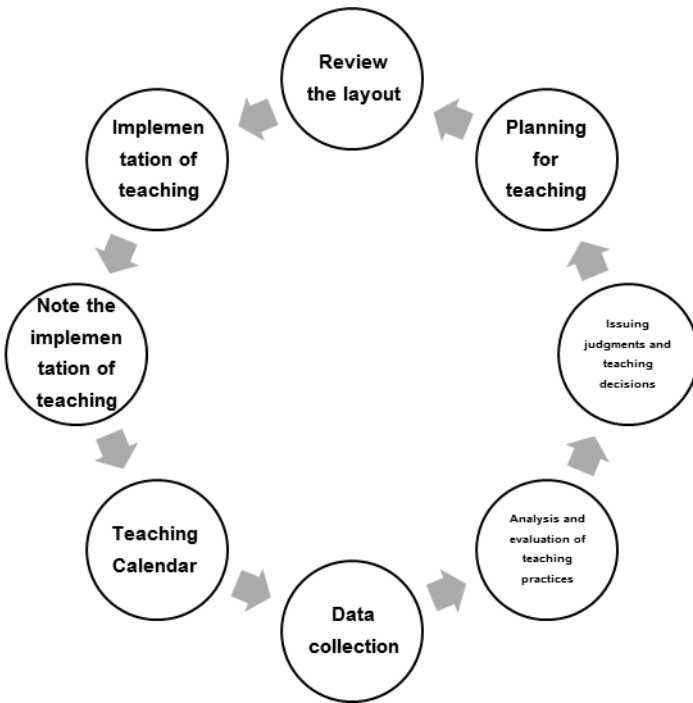
4) The observation and careful observation of the process of implementation of teaching, and the various factors that have an impact on them such as: available resources, the separation system, the learning environment, the management of the classroom.

5) Evaluate the teaching using the methods that have been identified for lesson planning.

6) Collect data from different sources such as: personal experience of the teacher and the procedural research carried out by the students, colleagues, learners and their parents about different aspects of teaching and the factors influencing them.

7) Analysis and evaluation of teaching processes and factors affecting them in the light of the teacher's observations, data collected from different sources, and the observation of colleagues during their work and discussion and dialogue with them, and the results of specialized research.

8) Issuing decisions and decisions concerning the amendment of teaching practices and taking into account these provisions and decisions in the planning, implementation and future evaluation of teaching. The Jay J. J. strategy can, therefore, be applied as follows:



The role of the teacher in teaching according to the strategy (Jay J. K):

The teacher's roles in Jay J. J.'s strategy are:

1. The teacher tests, and tries to solve problems in the educational situation.
2. The teacher tends to use learner-centered teaching strategies such as surveying and problem solving.

3. The teacher focuses on the teaching objectives of higher thinking skills.
4. The teacher uses the human input in classroom management.
5. The teacher contemplates all stages of the teaching process.
6. The teacher chooses between the alternatives, and monitors the progress in the lesson and what has been done and what has not been done.
7. The teacher should ask questions that need a detailed description of the event, its components and its consequences.
8. The school is able to develop the reflection of the learners through the description of the situation, and analysis of others, and the interpretation of relationships, and linking meditation to inquiry, and questioning.

(Alhashemi and Aldulaimi, 2008; Gimenez, 1999). Considerations that must be taken into account to activate the role of teaching in accordance with the strategy (Jay J. K):

- 1 - Create opportunities for reflection by encouraging learners to share their scientific ideas and use their own words to explain "explain" their ideas, and recording their scientific

thinking in various ways; for example through words, symbols, illustrations and models.

2 - To create opportunities for learners to pass with scientific expertise with different groups of capacity-mixed groups, as this supports the linguistic development of learners, especially those who suffer from lack of scientific skills, to encourage these learners to communicate with others, by asking questions Specific to them, or by encouraging them to share ideas that are more readily available to them.

3. To rely on open-ended assessment tasks, allowing learners to use a variety of strategies, and encouraging them to explain how they are handling the problem, so that the assessment function - if properly designed - is an integrated learning experience; The teacher provides diagnostic and evaluation feedback (Abdulaziz, 2009).

4. METHODOLOGY

First: Experimental Design

The design of the two experimental groups was chosen, and each of them is controlled. The design can be represented as follows:

Post-test classification skills in	The Joyce & Weil strategy is independent variable	First experimental group
Test acquisition of chemical concepts	Strategy (Jay J. K). Independent variable	Second experimental group

Second: Research Sample: - The sample of the study reached (76) students divided into two divisions, the number of students in the first experimental group (38) and the second experimental group (38) students.

- Search Tool:

First: Test the classification skills

The researcher constructed an objective test of the classification skills of the multiple choice type, the final form of (25) paragraphs.

Steps to build the test:

- Test Objective:

The classification skills test aims at revealing the effectiveness of Joyce & Weil and Jay J. K.'s strategies in classification skills.

- Test content:

The test consists of (25) multiple-choice questions consisting of five skills (defining characteristics, generalization, identifying similarities, identifying differences, distinguishing). Each skill has five paragraphs and each paragraph has four alternatives. Building the test paragraphs: The test paragraphs were built and the instructions were set up and presented to the experts and specialists to verify the validity of the test, its virtual validation and the validity of the content.

- Presentation of the test with instructions to answer a sample of survey students of the fourth scientific to make sure the clarity of the paragraphs and instructions to answer him.

- Apply the test on a second sample for the purpose of calculating the psychometric characteristics of the test.

- Calculating the coefficient of the difficulty of the paragraphs and ranged between (0.32-0.73) which is a good coefficient of difficulty.

- Calculation of the coefficient of discrimination of paragraphs and ranged between (0.23-0.86) which are good values of discrimination.

- Calculating the coefficient of test stability, according to the Kuder-Richardson equation 20 and the test stability value is 0.86 and this is a high and good stability.

- Application of the test on the original research sample.

Second: Testing the acquisition of chemical concepts

1- Educational literature, studies, research and previous tests were reviewed.

2 - Identify the topics to be taught from the book chemistry for the fourth grade scientific.

3 - Determination of the objective of the test: The test aims to measure the extent of acquisition of the two groups of chemical concepts using strategists.

4 - The subjects to be studied were analyzed and a list of chemical concepts was developed. It consisted of (46) concepts.

5 - Preparation of experimental items: The researcher used the list of chemical concepts in the construction of (46) question of the type of multiple choice consists of four alternatives, one alternative is true.

6 - Correcting the test: Give each test paragraph one mark. So that the total number of correct answers and all paragraphs (46) is a sign.

7 - The test was presented and instructions to answer the experts and specialists to verify the validity of the test and its authenticity and the authenticity of the content

8 - Presentation of the test with instructions to answer a sample survey of students of the fourth scientific to ensure the clarity of the paragraphs and instructions to answer him.

10 - The difficulty factor was calculated for each of the test paragraphs, and the values were shown to be between 0.73 and 0.27.

11 - The discrimination coefficients for the test paragraphs ranged from 0.64 to 0.27 and all test paragraphs were accepted.

12 - The effectiveness of the wrong alternatives, the researcher found that the alternatives have attracted a number of students in the lower group than the upper group, as the values of effectiveness of alternatives between (0.05) - (0.14 -), and therefore decided to keep the alternatives as they are.

13 - Calculate the stability of the test using the method of alpha coefficient Kronbach (0.78) this indicates that the test has a high degree of stability.

14 - Application of the test on the original research sample.

5. RESULTS

1- From the observation of the following table:

Table 1. The mean and standard deviation of the scores of the experimental groups in the post-test of the classification skills.

Significance	Tabular value T	Calculated value T	standard deviation	SMA	no	set
function	1.96	9.331	2.593	22.132	38	First experimental group strategy(Joyce & Weil)
			4.201	14.658	38	Second experimental group strategy) (Jay. J. K.

The above table shows that the calculated T value is greater than the scale, and the difference is statistically significant for the first experimental group in the average post-test scores of the classification skills.

2- From the observation of the following table:

Significance	Tabular value T	Calculated value T	standard deviation	SMA	no	set
دالة	1.96	5.155	15.1	35.3	38	First experimental group strategy (Joyce & Weil)
			10.74	16.6	38	Second experimental group strategy) (Jay. J. K.

The above table shows that the calculated T value is greater than the scale and that the difference is statistically significant for the first experimental group in the mean of the post-test scores.

6. CONCLUSION

The results indicated a statistical difference in favor of the Joyce & Weil strategy in classification skills and acquisition of chemical concepts. This may be due to many factors including:

1. The fact that the strategy depends on the movement, interaction and participation of students in all educational activities, and aims to activate and improve the students' previous knowledge and experience related to the studied chemistry.
2. This strategy provides a forum where students ask questions, discuss and exchange ideas, provide and receive assistance, explore situations, look for patterns and relationships in a set of data, and formulate and choose proposals freely.
3. It works to enhance personal contact and understanding through students' discussions with each other.
4. The role of the student in the educational process is positive and not negative, as the student initiates learning, participates,

discusses and interacts with other colleagues in contrast to the strategy of (Jay J. K, which depends on the role of the teacher more.

5. The student in this strategy makes a mental effort to solve a problem or explanation of a phenomenon or issue facing him and represent this stage, the first stage is the adoption of the student on his own thinking alone.

6. To walk in accordance with organized and sequential steps and take into consideration individual differences, which contributes to the acquisition of chemical concepts and retention in their minds.

7. Students desire to learn the best methods according to the steps of the strategy in the presence of a teacher facilitator and organizer of the educational process where crystallized chemical concepts in their minds.

7. RECOMMENDATIONS

In light of the results of the research that the Joyce & Weil strategy is better than Jay J. J.'s strategy with classification skills and acquisition of chemical concepts, the researcher recommends the following:

1 - The need to use modern teaching strategies in learning chemistry as one of the effective methods of learning.

2 - The need to pay attention to the practical aspect and the design of activities Safia and his students allow students to transfer their knowledge and skills from the classroom and school to their daily lives.

3 - Reorganize and arrange the content of chemistry books in proportion to the new strategies to develop the skills of classification among students.

Proposals:

To complete the current research, the researcher proposes the following studies:

1. Following the Joyce & Weil strategy in other variables (such as nonverbal thinking, the trend toward science, creative thinking, etc.).

2. The impact of my strategies in the teaching of other subjects such as (physics, biology) and other stages of study.

3. Strategic Effectiveness (Joyce & Weil) in correcting the misinterpretation of chemical concepts and their retention

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