Effectiveness of s.n.i.p.s Strategy in the Cognitive Preference and Achievement of the Fifth-Grade Biology Girl Students in the Subject of Biology

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Abstract

Through the results of the research, the researcher reached a set of conclusions, including: Strategic effectiveness (SINP) in teaching biology for the fifth-grade biology and its impact on raising the level of female students' achievement in the achievement test presented to them. Strategic effectiveness (SINP) in developing the level of cognitive preference among the fifth-grade biology students is through its patterns in retrieving, criticizing and remembering concepts and knowledge in biology. In light of the results of the current research, the researcher recommends some of the recommendations that we include. Use strategy (SINP) in teaching biology to the biology fifth year middle school students because of the clear and effective impact of that strategy in raising the level of female students in the achievement aspect. We have to direct biology teachers to use modern teaching strategies and methods to raise students' achievement levels. The necessity of the attention of male and female teachers of biology to the development and development of the four types of cognitive preference among students.

Keywords
s. n. i. p. s strategy, cognitive, preference, achievement, students, biology

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Introduction

Research problem: In our time, we are witnessing rapid and growing scientific and cognitive developments which force us to try to keep pace with these changes and employ them in various fields of life, especially the educational aspect. Researchers as an attempt to develop it and develop ways for students to interact with the scientific and life information it provides to them. The study of each indicated that there is a weakness in the level of students’ achievement of biological concepts, which prompted the researcher to try to use a teaching strategy different from what is familiar to students to identify the extent of its impact on their academic achievement. Therefore, the problem of the current research is to answer the following question. What is the effectiveness of teaching biology using a strategy S.n.i.p.s On academic achievement and the development of cognitive preference among fifth-grade biology students?

Research importance: In order to prepare conscious, educated generations and keep pace with the rapid scientific and technological changes in the world, we must arm ourselves with strategies and teaching methods that work to develop their knowledge curiosity in research, investigation and investigation of scientific and cultural information and arming with it, which makes them leaders, thinkers and researchers in the future. Biology is one of the important sciences that It depends on stimulating the learner’s curiosity and developing his exploratory behavior, as the higher the curiosity, the greater the exploratory behavior followed, which leads to the formation of a gap between what the learner knows and what he does not know, which prompts him to search for more to satisfy this feeling about the use of teaching strategies that seek to achieve an integrated scientific and cognitive growth process in the learner’s personality. One of the important strategies that emerged in this aspect is the strategy (s.n.i.p.s) Are from beyond the strategies of knowledge and proven to enable the learner to acquire scientific knowledge effectively and well as it improved their ability to think in general it is one of the strategies that have proven their worth in the learner’s training to play a positive role in the collection and organization of information, monitoring and evaluation during the learning process. According to the foregoing

The importance of the current research stems from: 1- The researcher's attempt to identify the effectiveness of the strategy (s.n.i.p.s) in the achievement of the fifth biology students in the subject of biology. 2- The importance of the research stems from trying to develop the learner’s cognitive curiosity by stimulating their desire to acquire knowledge and learning and trying to explore the unknown, which makes them persevere in the search for what satisfies their cognitive curiosity by thinking in new ways and methods that make the learning process for them an enjoyable and not boring process. 3- Attempting to direct the attention of male and female teachers to a metacognitive strategy as an attempt to move away from the use of unusual methods that focus on memorization and memorization by heart.

Research aims: The current research aims to identify:- 1- Strategic effectiveness (s.n.i.p.s) In the collection of students fifth grade scientific biological material in biology. 2- Strategic effectiveness (s.n.i.p.s) in developing the cognitive preference of the fifth grade biology students in the subject of biology.

Research assumes: In order to achieve the objectives of her research, the researcher formulated the following two hypotheses: 1- There are no statistically significant differences at the level of significance (0.05) between the average scores of the experimental group students who will study according to the strategy (s.n.i.p.s) And the average scores of the students of the control group who will study in the usual way in the cognitive preference scale . 2- There are no statistically significant differences at the level of significance (0.05) between the average scores of the experimental group students who will study according to the strategy (s.n.i.p.s) and the average scores of the students of the control group who will study in the usual way in the achievement test.

Research limits: The current search is: Fifth year middle school students in the General Directorate of Education in Dhi Qar (Directorate of Education in Nasiriyah)

- The second semester of the academic year 2017/2018
- The Biology Book for the Fifth Grade Biological Sciences, set by the Ministry of Education, authored by Dr. Hussein Abdel Moneim and others, 7th edition, (Chapters Fifth, Sixth and Seventh)
Definition of Terms

Strategy of s.n.i.p.s

1- Bahloul, 2004: He defines it as a reading introduction consisting of five steps that facilitates the process of immediate processing of the readable text, which is done through the interpretation of the visual medium, as it focuses on images, shapes and diagrams, which enables it to be used to focus on the readable text to improve students' understanding and knowledge of it. (Bahloul, 2004)

2- Attia, 2009: It is a metacognitive strategy that has proven its worth in achieving reading comprehension. It emphasizes all visual representations contained in the readable text and utilizes them in students' comprehension and comprehension processes. (Atiya, 2009)

Theoretical definition: It is a strategy that depends on the visual representations of the learner.

Procedural definition: It is one of the metacognitive strategies that have proven its worth in achieving reading comprehension and comprehension, and the researcher will adopt it as an independent variable in teaching the students of the experimental group.

Cognitive Preference, Known to Everyone

1- Mc Naught, 1992: It is a cognitive pattern concerned with the way in which knowledge is acquired, evaluated, and retrieved by individuals, and provides them with the opportunity to modify and change it through the vocabulary of the curriculum and the teaching methods used. (Mc Naught, 1992)

2- Al-Saffar, 2008: He defines it as how the learner prefers to process information through an integrated set of mental and psychological processes within the educated individual. (Al-Saffar, 2008)

Procedural definition: It is the degree that the students in the research sample will obtain by collecting their answers on the items of the cognitive preference scale prepared by the researcher.

Literature Review

First: Metacognitive Strategies

One of the main objectives of the educational learning process is to move the learner from the stage of receiving information to the stage of building information, processing it, and transferring it from knowledge (cognition on to metacognition) Metacognition Which requires him to meditate and delve into knowledge in a deep way so that he can explore and train on how to develop his abilities in how to think about thinking. The concept of metacognition appeared at the beginning of the seventies, when the scientist was falafel (John H. Flavell, 1979) is one of the first effects of this concept. The concept of metacognition has sparked wide controversy about the theoretical basis that emerged from it and the extent of its independence from the concepts that overlap with it, as metacognition is a theory that deals with self-knowledge, that is, it depends on what the individual knows about his own thinking, as Falafel sees (Flavell) That all mental activity experienced by the learner motivated and emotions and mobility skills conscious or non-conscious are all considered within the knowledge beyond. (Al-Rubaie, 2016) The metacognitive processes have a basic and prominent role in the learning process and its success, which makes us seek to identify ways to develop and develop these skills among learners and work to help them to reach the application of those cognitive processes (understanding, remembering, attention, processing information and cognitive excitement) well, which is done through Their control over metacognition. (Hallahan & Kauffman, 1994) In order for the learner to become an effective thinker, he must learn metacognitive skills and ways to use them and benefit from them in educational situations. Strategies are nothing but activities, mental processes and self-control processes that the learner uses before, during and after the learning processes. The use of metacognitive strategies is represented by three basic elements, which we list as follows:

1- Control: It is the nature of the decisions and actions that the learner performs during his activities, which is based on his previous knowledge

2- Knowledge: We mean the learner's knowledge of the nature of the learning process and the cognitive skills and strategies that emanate from it that help the learner to understand the tasks
assigned to him and to choose any appropriate strategies for them.

3- Awareness: We mean awareness is the process of reaching the goal of the activity carried out by the learner, which is done through his knowledge of the procedures that he must perform to reach the results. (Bahloul, 2004: 169)

The Importance of Metacognitive Strategies for Learners

1- It enables the learner to continuously self-record what he is learning.
2- The learner can control his thinking processes and not get carried away by other processes that occupy his thinking.
3- Enable the learner to be aware of his own capabilities, especially in dealing with the situations he is going through.
4- It helps the learner to solve his problems related to the scientific subjects and also works to transfer the learning effect from previous situations to new educational ones.
5- It works on developing the levels of thinking, processing and employment of learners and raising them to higher levels. (Holden & Yore, 1996) strategy (S.N.I.P.S)

It is one of the metacognitive strategies, as it is a strategy that allows the learner to use what he possesses of individual skills in his own learning process and works to develop them, and in this way he bears the responsibility for his own learning. It is a strategy consisting of a set of steps that the learner takes in order to identify Self-activities, mental processes, and self-control processes that the learner performs before, during, and after the learning process (S.N.I.P.S J) depends on the interpretation of information through visual means. It seeks To improve the learning process by using it as a five-step information input, which facilitates the processing process and thus reaching the desired goal or the information to be acquired. (Al-Dulaimi, 2009: 23)

The naming of a strategy by this name is an acronym for its five steps, as shown below:

• First (S) which is an abbreviation for (START WITH QUESTIONS) That is, start asking questions by the learner.
• Secondly (N) which is an abbreviation for (Note what be learned from hints Here, the learner must write down what he can learn from the instructions and directions that are given to him or explore by himself.
• Third (I) which is an abbreviation for (Identify what is important It is the third step that the learner takes, as here he determines what is important in the text required of him.
• Fourthly (p) which is an abbreviation for (plug it into the chapter) Here on the learner that connects or connects between the means and the text readable by him.
• Fifth (S) which is an abbreviation for (see if you can explain the visual to someone It means the extent to which the learner is able to explain the visual medium to another person or to himself. (Obaidat and Abu al-Samid, 2007: 192)

What Is the Teacher’s Role in Implementing the Strategy SPINS?

The teacher has limited roles in this strategy, including:

• His role as a trainer :that is, he works on training the learner on cognitive and metacognitive skills, which requires him to reinforce them through intensive reading of all his lessons.
• His role is sufficient :that is, the teacher here seeks to prepare him for the educational environment for the learner, which is done by providing him with maps, illustrations, and even drawings, which in turn contribute to the process of developing learners’ concepts, as it works to provide the means of self-evaluation that the learner needs upon completion of the work assigned to
• His role is guiding :here the role of the teacher is to monitor and direct the learner and according to the learner’s needs, as he is a source of information .

Second: The Preference of Cognitive

Recent studies tend to study the individual differences between learners, and in particular to research the differences in the aspect of their cognitive and perceptual construction, and here we see the emergence of many different labels and perceptions about these differences, some of them refer to them as cognitive thinking, cognitive learning or cognitive activity. The scientist
(Kardner) refers to cognitive preference as a trend that depends on the learner’s personal preference in the steps of his mental performance, i.e. the mental processes through which the sensory input is transformed and developed and then stored in the learner’s mind and thus is called upon when needed. Skills that are directly related to the mental activities that he has stored and which he constantly develops in the situations he faces, where the learner works to organize his knowledge in the manner of coding, storage and retrieval of the stored knowledge he has.

**Cognitive preference patterns:** Cognitive preference patterns varied according to what researchers see in this field, and we present a classification here. 1989 Heat He identified four types of cognitive preference, which are:

- **Principle’s pattern** (principle type a learner who follows such a pattern is characterized as accepting any information that may help him to master a principle, law, or any concept that he may encounter.
- **Memory pattern** (Memory type the learner within this pattern accepts the structured information and then expresses his response to it just to get to know it and nothing more.
- **Critic style** (Critical type the learner is distinguished within this style by their trial of the information and skepticism about it and working to verify it and the extent of its truthfulness.
- **Retrieval mode** (Principle type the learners of this are distinguished by accepting the information as they remember it without any change or modification in it. (Al-Atoum, 2004)

**Previous Studies**

**Study (Jassim, 2009)** the study aimed to identify the effect of an educational / learning model on cognitive preference on middle school students in science. The study was conducted in Iraq / Diyala Governorate. The researcher identified the first six units of the book Principles of General Science for the first intermediate grade and for the 2007/2008 academic year. An entire semester, the number of the research sample was (57) female students from the first-grade average, and the students were divided into two groups, experimental and control. Pearson (78.4), the researcher processed her data statistically by using the t-test for two samples of unequal numbers, and the results showed the superiority of the experimental group students who studied without using the educational / learning model and with significant significance in the cognitive preference test.

**Al-Rubaie Study, 2016:** The study aimed to identify the effect of the strategy (S.N.I.P.S) in the achievement of first intermediate grade female students in biology and their visual thinking skills. It took an entire semester the researcher adopted the experimental method with partial control for two equal groups in the post test to acquire the subject of Biology Principles and Visual Thinking Skills. The study was conducted in Iraq/Baghdad, one of them, the number of the research sample was (80) female students, distributed into two experimental and control groups. Kewder-Richardson 20), as the achievement test was 0.747, and the visual thinking skills test was 0.691. After completion of the experiment, the results were statistically analyzed using the t-test (t-test FOR two unequal independent samples, the results showed that the students of the experimental group outperformed the students of the control group in both the achievement test and the visual thinking skills test. The researcher concluded that the strategy of (S.N.I.P.S) A positive effect on the achievement of female students in the subject of Biology Principles for the first intermediate grade and their visual thinking skills.

**Methodology**

**Research Methodology:** The researcher adopted the experimental research method to achieve the objectives of her research. As for the experimental design followed, the researcher chose the experimental design for the two groups with partial control, an experimental group and a control group, as shown in the figure.
Research Community and Sample

Include the search community. The students of the fifth preparatory class of biological sciences in the middle and secondary day schools of the Directorate of Arbaia Nasiriyah (Di Qar Governorate) for the academic year (2017-2018). The Al-Istbraq Preparatory School was deliberately chosen to implement the research experience because the school administration was very cooperative with the researcher and because the school was close to housing the researcher. Al-Istbraq School includes four divisions for the fifth grade of middle school, biology. The researcher chose, by random drawing, two divisions, one of which represents the experimental group, which is Division (B), which will be taught according to the strategy (s.n.i.p.s) the other is Division (C) to represent the control group that will be taught according to the usual method. The number of students in the two research groups reached (64) students, and by (32) students for the experimental group and (33) students for the control group. The researcher excluded (statistically) the students who failed last year because they were They have experience in the cognitive aspect, and their results affect the experience. Their number reached (3) students, and accordingly, the number of students in the actual research sample became (31) students, and (31) students in each group.

Equivalence of Search Groups

The researcher divided the two research groups into the variables that she finds that affect the results of her experiment, which are as follows:

First/chronological age: the students of the research sample were rewarded in terms of their chronological age, where the researcher obtained this information through the student cards within the school administration, and after using the T-test for two independent samples, the difference between these two averages was not statistically significant at the level of significance (0.05). Where the calculated t-value amounted to (0.198), which is less than the tabular t-value of (2,000), and therefore the two groups are considered equivalent in the chronological age variable, as shown in Table (1).

Table 1
The arithmetic mean, standard deviation, and the calculated and tabulated T-values for the scores of the two research groups in the age variable

<table>
<thead>
<tr>
<th>Statistical significance at 0.05 . level</th>
<th>T value</th>
<th>degree of freedom</th>
<th>deviation normative</th>
<th>average arithmetic</th>
<th>Number of female students</th>
<th>the group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not statistically significant</td>
<td>1.98</td>
<td>60</td>
<td>12.8791</td>
<td>211.39</td>
<td>31</td>
<td>Experimental</td>
</tr>
<tr>
<td></td>
<td>0.190</td>
<td></td>
<td>13.7341</td>
<td>213.22</td>
<td>31</td>
<td>the officer</td>
</tr>
</tbody>
</table>

Intelligence: The researcher applied Raven's intelligence test to reward the female students in the research sample. The results showed that there were no statistically significant differences at the level of significance (0.05), as shown in Table (2).

Table 2
The arithmetic means and standard deviation of the two control experimental groups in the equivalence of the intelligence variable

<table>
<thead>
<tr>
<th>Statistical significance at 0.05 . level</th>
<th>T value</th>
<th>degree of freedom</th>
<th>deviation normative</th>
<th>average arithmetic</th>
<th>Number of female students</th>
<th>the group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not statistically significant</td>
<td>1.98</td>
<td>60</td>
<td>5.222</td>
<td>37.908</td>
<td>31</td>
<td>Experimental</td>
</tr>
<tr>
<td></td>
<td>1.834</td>
<td></td>
<td>6.478</td>
<td>39,023</td>
<td>31</td>
<td>the officer</td>
</tr>
</tbody>
</table>
Previous Knowledge Test

The researcher prepared an achievement test to measure the previous knowledge of the female students in the research sample. The test was prepared from the biology book for the fifth-grade biology. The test consisted of twenty paragraphs of multiple choices. It was presented to a group of arbitrators and experts in the field of science education methods. The test was applied before the start of the experiment. The researcher processed her data using the $t$-test for two independent samples, and the calculated $t$-value was smaller than the tabular value, and table (4) shows this.

Table 3
The arithmetic means and standard deviation of the two experimental control groups in the prior knowledge test

<table>
<thead>
<tr>
<th>Statistical significance at 0.05 level</th>
<th>T value</th>
<th>degree of freedom</th>
<th>deviation normative</th>
<th>average arithmetic</th>
<th>Number of female students</th>
<th>the group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not statistically significant</td>
<td>1.98</td>
<td>60</td>
<td>4.210</td>
<td>16.27</td>
<td>31</td>
<td>Experimental</td>
</tr>
<tr>
<td></td>
<td>1.230</td>
<td></td>
<td>3.987</td>
<td>14.38</td>
<td>31</td>
<td>the officer</td>
</tr>
</tbody>
</table>

Search Supplies

1// Identification of the scientific subject: The research subject was specified in the fifth chapter (transportation), the sixth chapter (nervous coordination and sensation) and the seventh chapter (hormones and glands) of the biology book for the fifth-grade biology for the academic year 2017-2019.

2// Defining behavioral goals: The researcher has identified (148) goals according to Bloom’s classification and at all levels.

3// Preparing teaching plans: According to the specific scientific material within the research and with the help of behavioral objectives, (36) teaching plans were prepared for both groups. Samples of the plans were presented to arbitrators and experts in the field of science teaching methods, and the appropriate modifications were made to them, and accordingly, the plans were ready for implementation.

Search Tools

According to the objectives of the current research, the researcher had to prepare two tools for research, namely (the achievement test in biology for the fifth and sixth semesters) and the preparation of (a test of cognitive preference).

First: Building an Achievement Test

Preparation of the test map: The researcher prepared a test map that included the scientific topics specified within the chapter (fifth, sixth and seventh) of the book of biology, and with the help of the behavioral objectives that were formulated and according to Bloom’s classification and attic, the number of test items was determined relative to the relative importance of each chapter and according to the levels of objectives in that separation and the test items were distributed as shown in the test map.

Drafting of test items: The researcher formulated multiple-choice achievement test items, and the number of test items reached (40) test items.

Validity of the test: The researcher verified the validity of the achievement test in the following form:

1// Apparent honesty: The test items were presented to a group of specialists in the field of science teaching methods, and all items were agreed upon, according to the opinions of the arbitrators.
with some modifications being made to some of them.

2/\ Content validity: the test is true in its content if its paragraphs represent the domain of behavior to be measured through the specification table.

Table 4
The test map with the percentage of importance of the objectives and their number for each level

<table>
<thead>
<tr>
<th>Total</th>
<th>Calendar</th>
<th>Composition</th>
<th>Analysis</th>
<th>Application</th>
<th>understanding</th>
<th>Knowledge</th>
<th>Relative importance</th>
<th>number of pages</th>
<th>Topic</th>
<th>the classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>43%</td>
<td>42</td>
<td></td>
<td>Fifth</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>36%</td>
<td>30</td>
<td></td>
<td>VI</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>21%</td>
<td>18</td>
<td></td>
<td>seventh</td>
</tr>
<tr>
<td>40</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>10</td>
<td>100%</td>
<td>90</td>
<td></td>
<td>Total</td>
</tr>
</tbody>
</table>

Survey App

1/\ The first survey application: In order to verify the time required to perform the test and to identify the extent of safety and clarity of the test language and its instructions, the researcher presented the test to a sample of (30) female students from Al-Shumukh Preparatory School for Girls) One minute the test was applied on Sunday, 8/4/2018.

2 // The second exploratory application of the achievement test: To verify the characteristics of the psychometric test, i.e. extracting the coefficient of difficulty and stability, the researcher applied a test on (100) female students of the fifth grade biology at Ur Preparatory School for Girls. A percentage of 27% of the highest and lowest scores is to perform the following statistical analyzes

3// Difficulty factor: Using the equation of paragraph difficulty extraction, the researcher extracted the difficulty coefficient for the items of the achievement test, whose values ranged between (0.34-0.62), which are acceptable coefficients as indicated by (Allam, 2006), where he determined the difficulty coefficient of paragraphs in proportions ranging between (0.20- 0.80)

Discriminating Force

Using the discrimination equation, the discriminatory power of the achievement test items was calculated and after statistical processing the values ranged between (0.32-0.87) and they can be considered acceptable ratios, as the paragraph is considered acceptable if its discriminatory ability is greater than (0.20). (Al-Dulaimi and Al-Mahdawi, 2005: 89)

The efficacy of the wrong alternatives: The effectiveness of the wrong alternatives was calculated using its own equation, and it was found that all the coefficients of the effectiveness of the wrong alternatives were negative, and their values ranged between (0.04-0.31), and accordingly, the alternatives were effective and did not need to be modified or changed.

Test stability: The stability of the test is intended to verify the existence of real differences between individuals in the trait or feature measured, and also to investigate the accuracy and consistency in the test results and the extent of fluctuation or stability of those results (Mansour et al., 2002: 74). We have the lowest estimated value of the stability coefficient, and the value of the stability coefficient is (0.87), which is a high and acceptable stability coefficient where it can be relied upon.

Second: Cognitive Preference Scale

Determining the objective of the test: After reviewing the previous studies and research literature, the researcher set out to prepare a test to measure the cognitive preference of the students of the research sample the following steps were followed.

Determining and formulating the paragraphs of the scale
To achieve the objectives of the current research, and after reviewing previous studies and
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...and the pattern of principles and pattern of applications.

Formulating the scale instructions: The scale instructions are a guide that goes according to the respondent to answer the paragraphs of the scale.

**Exploratory Application of The Scale**

Applying the scale to the survey sample: The researcher applied her measure of cognitive preference to a first exploratory sample of (25) students to verify the clarity of the scale’s paragraphs and to calculate the time taken to answer it. The response time was calculated through the arithmetic average and it was found that each student needs only (35) minutes.

Applying the scale to a sample for statistical analysis: The researcher applied her scale to the statistical analysis sample, and its number reached (100) female students (Al-Nasiriyah Preparatory School for Girls). The researcher relied on the results of the sample to extract the indicators and psychometric characteristics of the scale as follows:

- **Statistical analysis of the items of the cognitive preference scale**
  - **Veracity of scale**: The validity of the scale was calculated by presenting the scale’s paragraphs to a group of experts and arbitrators in the field of educational and psychological sciences. Their observations and amendments were taken into consideration, and (3) paragraphs were deleted from them because they did not reach an agreement percentage (80%), and accordingly, the paragraphs of the scale became composed of (30) Paragraph only.
  - **Construction sincerity**: The construct validity is defined as the degree through which the scale measures a specific trait or characteristic, which is achieved by finding the correlation coefficient between each of the paragraph and the overall degree of the scale.
  - **Discriminatory power of vertebrae**: Calculating the discriminatory power of the paragraphs is one of the aspects of the task to show the extent of the possibility of identifying the differences between the respondents to the scale. The researcher arranged the answers of the students in descending order, and then the highest (27%) answers and the lowest (27%) were selected within the extreme groups and using the t-test for two independent samples. All computed t values are greater than (t) Tabulation, the value of which is (1.98) at the level of significance (0.05) (Accordingly, all paragraphs of the scale are considered distinct paragraphs by the respondents.
  - **Relationship of the paragraph to the total score of the scale**: The researcher relied on the Pearson correlation coefficient to find the correlation between the score of the respondent individual on each item with his total score for the scale, as this correlation indicates that the item measures the same concept measured by the total score of the scale. Statistically at the level of significance (0.05), where the paragraphs’ correlation coefficients ranged between (0.232-0.483), all of which are higher than the tabular value of (0.098). All paragraphs of the scale are considered honest and achieve the desired goal.
  - **Constancy**: Stability is an important characteristic of psychological and educational scales. Stability means consistency between the total scores of the scale items, which is supposed to be specific to its measurement (Abd al-Rahman, 2008: 177). The researcher relied on the method of re-testing, which depends on re-applying the test to the same sample after a period of time and at least two weeks between the two applications where the calculated coefficient between the results of both tests correlation has correlation coefficient reached four patterns according to the following sequence pattern principles (.823) remembering the pattern (0.872) critic pattern (0.810) retrieval pattern (.882) The coefficient The stability of the test as a whole is (0.86), which is considered an acceptable value and a good indicator, as the stability indicator is considered good if it is higher than (0.70) (Melhem, 2005)

**The ultimate application of the scale**: After the researcher verified properties for consideration, it has been applied to the sample and the current adult population (62) female students from a junior high girls continued the search experience completely throughout the time period on Tuesday, 20 th / 2/2018 on Sunday, 20/5 / 2018.

**Statistical Means**

The researcher relied on a variety of statistical methods according to the research requirements and formulated objectives, where the statistical portfolio of social sciences was used (spss) to
process the search data. Presentation and interpretation of results: There are no statistically significant differences at the level of significance (0.05) between the average scores of the experimental group students who will study according to the strategy (S.N.I.P.S) and the average scores of the students of the control group who will study in the usual way in the cognitive preference scale.

Table 5
Arithmetic averages and standard deviations of the experimental and control groups in the cognitive preference scale with its four patterns

<table>
<thead>
<tr>
<th>Statistical significance</th>
<th>T value tabular</th>
<th>Calculated T-value</th>
<th>standard deviation</th>
<th>Arithmetic mean</th>
<th>the group</th>
<th>the pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistically significant in all patterns</td>
<td>1.98</td>
<td>5.231</td>
<td>6.01</td>
<td>25.32</td>
<td>Experimental</td>
<td>the officer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.99</td>
<td>5.99</td>
<td>20.01</td>
<td>Experimental</td>
<td>the officer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.98</td>
<td>4.23</td>
<td>20.91</td>
<td>Experimental</td>
<td>the officer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.48</td>
<td>3.98</td>
<td>19.32</td>
<td>Experimental</td>
<td>the officer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21.234</td>
<td>6.98</td>
<td>30.34</td>
<td>Experimental</td>
<td>the officer</td>
</tr>
</tbody>
</table>

The table shows us that the calculated T-value in the cognitive preference test is higher than the tabular T-value at the significance level (0.05) and with a degree of freedom (60) and in all its four patterns, which indicates the superiority of the experimental group that was studied with the strategy (SINPS) on the control group that was studied in the usual way in the cognitive preference scale variable. Accordingly, the null hypothesis is rejected.

The Second Hypothesis

There are no statistically significant differences at the level of significance (0.05) between the mean scores of the experimental group students who will study according to the strategy (S.N.I.P.S) and the average scores of the students of the control group who will study in the usual way in the achievement test. The researcher calculated the arithmetic averages of the two experimental groups that were studied with the strategy (SINP) and the control group that studied in the usual way in the achievement test prepared by the researcher.

Table 6
arithmetic means and standard deviations of the experimental and control groups in the achievement test

<table>
<thead>
<tr>
<th>Statistical significance</th>
<th>degree of freedom</th>
<th>T value tabular</th>
<th>Calculated T-value</th>
<th>standard deviation</th>
<th>Arithmetic mean</th>
<th>the group</th>
<th>the number</th>
<th>the group</th>
</tr>
</thead>
<tbody>
<tr>
<td>function</td>
<td>60</td>
<td>1.98</td>
<td>8.231</td>
<td>6.01</td>
<td>35.32</td>
<td>31</td>
<td>Experimental</td>
<td></td>
</tr>
</tbody>
</table>

From the above table, it is clear to us that the calculated T-value of (8.231) is higher than the calculated T-value, which indicates that there are statistically significant differences between the experimental and control groups, and these differences are in favor of the experimental group that was studied with the strategy (SINP).
Second: Interpretation of The Results

By reviewing the foregoing results, it becomes clear to us that the members of the experimental group who are studying with the strategy (SINP) (On the control group that was studied in the usual way in the variables of academic achievement and the variable of cognitive preference, and the researcher interprets this result to the effectiveness of a strategy) SINP in improving and raising the level of achievement of the students of the experimental group in the subject of biology and its clear positive impact. It is one of the strategies that make the students the focus of the educational process and they are the basis in the process of formulating and generating ideas and expressing their opinions correctly and appropriately, which is consistent with what is advocated by the meta-theory Knowledge, as it works on developing the levels of thinking, processing and employment of learners and raising them to higher levels by linking the readable text and the higher thinking processes of the learner. The results also indicate that the students of the experimental group excelled in the critical style, which indicates the development of their level of thinking, as well as their acquisition of the language of sound dialogue, the spirit of collective cooperation, expansion and deepening of the concepts and knowledge acquired during the experiment period. These results are identical to the study of (Jassim, 2009). And the study (Al-Rubaie, 2016), the results of which indicate the superiority of the students of the experimental groups in the variable of cognitive preference and academic achievement.

Conclusions

Through the results of the research, the researcher reached a set of conclusions, including:

- Strategic effectiveness) SINP (in teaching biology for the fifth-grade biology and its impact on raising the level of female students’ achievement in the achievement test presented to them.
- Strategic effectiveness) SINP (in developing the level of cognitive preference among the fifth-grade biology students through its patterns in retrieving, criticizing and remembering concepts and knowledge in biology.

Recommendations

In light of the results of the current research, the researcher recommends some of the recommendations that we include

- Use strategy (SINP) in teaching biology to the biology fifth year middle school students because of the clear and effective impact of that strategy in raising the level of female students in the achievement aspect.
- Directing biology teachers to use modern teaching strategies and methods to raise students’ achievement levels.
- The necessity of the attention of male and female teachers of biology to the development and development of the four types of cognitive preference among students.
- Conducting a similar study on the effectiveness of a strategy s.n.i.p.s (in teaching chemistry for the fifth grade biology and its impact on the academic achievement variable
- Conducting a study dealing with the impact of the strategy s.n.i.p.s in the achievement of biology and its impact on academic achievement according to the gender variable.

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