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## **The effect of the imagination strategy in the achievement of the middle school students and their existential intelligence in science**

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**Abstract---** The study aims to identify the impact of the imagination strategy in the achievement of the second -grade students and their existential intelligence in science, as the research sample included two groups, one of which was the experimental group. The number of its students was (40) students, and the other represented the control group, and the number of its students was (36) students, and in the way the researcher chose (Al -Hassan bin Ali High School) from the research community represented by middle schools of the Directorate of Education in Diyala Governorate/Baquba. The researcher adopted the experimental research curriculum as a curriculum to conduct her research, which includes a single independent variable (imagination strategy) and two dependent variables (academic achievement, existential intelligence). The researcher chose the experimental design to control the research variables, and before starting the application of the experiment, the researcher between the two research groups has been rewarded for the purpose of obtaining accurate results with the following variables: (time -lifetime calculated months, previous achievement of students, previous information test, Raven test for intelligence). After conducting the parity between the two research groups, the researcher prepared the application requirements such as plans, goals and tests for the two research groups, and after completing the application of the experiment, the researcher applied her research tools to the two research groups, as the researcher obtained data for the two groups of research. This data was statistically processed by the T -Test test of two independent eye and showed the results; The students of the experimental group outperformed the students of the control group who studied according to the (imagination strategy) in the achievement test and the scale of existential intelligence.

**Keywords**---imagination strategy, academic achievement, existential intelligence, second intermediate students, science subject.

## **Introduction**

### **1. The Problem of the Study**

Science is a natural science that includes theories, facts and inventions; Despite the importance of science, we find that the actual reality of its teaching is still stagnant and bored. This is due to the deficiencies in the strategies, methods and methods used in the teaching of students for scientific subjects. And as it was found that there is a weakness in the achievement in the subject of science, especially for students of middle school, because of this critical age stage of privacy and the fact that students are going through physical, mental and psychological changes, and these methods may be limited from the point of view of many educators and for the purpose of keeping pace with development, strategies and teaching models must be used. It is suitable for the requirements of this development. Some studies have found weakness in achievement, such as the study (Saleh, 2015) and the study (Abdul Hassan, 2016). Hence the basic research problem emerges, as there is an urgent need to raise a generation that depends on the development of their intelligence in an integrated manner by developing their minds and developing their existential intelligence, and thus the research problem can be determined by the following question:

**"The effect of the imagination strategy in obtaining the students of the second intermediate grade and their existential intelligence in the subject of science"**

### **2. The Importance of the Study**

The imagination strategy is a basic pillar that affects academic achievement, because it has the ability to attract students' attention, and follow up events by imagining a realistic story that carries in its folds scientific concepts as links between events, as it provides students with scientific information and provides them indirectly. (Al -Harahsheh, 2014 : 193). The result of the teaching is measured by the level of students' achievement according to any aspect, whether it is cognitive, emotional or skill. The achievement is one of the factors of mental formation, and it is one of the basic concepts in the student's mental coordination and shows special importance in evaluating performance, especially performance that relates to mental activity and is seen as a basis in which the academic level can be determined. (Al -Khalidi, 2008: 89). Existential intelligence is the intelligence of real or real life, as this type of intelligence addresses the acumen of the cases of insight, understanding, and skills related to the nature of existence, reality, issues such as freedom, responsibility, priorities of available choices, great commitment, searching for meaning, purpose, causes of changes, transformations, deaths, and beyond, and these issues affect me the student thought and expanded his perceptions. (Wong, 2011, p: 69 - 81).

### 3. The aim of the study and its assumption

The current research aims to identify the impact of the imagination strategy in the achievement of the second -grade students in science and existential intelligence among the second -grade students. For the purpose of verifying the research goal, the following two zero hypotheses put:

- a. There is a statistically significant difference at the level of significance (0.05) between the average degrees of the experimental group students who are studying according to the imagination strategy and the average degree of the control group who are studying according to the usual method of the achievement test.
- b. There is no difference with statistical significance at the level of significance (0.05) between the average degrees of the experimental group who study according to the imagination strategy and between the average grades of the control group who are studying according to the regular method on the existential intelligence scale.

### 4. The Limits of the Study

The research is determined by:

- a. **Spatial boundaries:** middle and secondary schools (day governmental) for boys only affiliated with the General Directorate of Education in Diyala Governorate / Baquba.
- b. **Time limits:** the first semester of the academic year (2021-2022).
- c. **Human borders:** middle school students.
- d. **Cognitive Boundaries:** The Book of Sciences for the second intermediate grade, 3rd edition, for the year (2019), scheduled from the Ministry of Education for the academic year (2021-2022). The classrooms were identified, which are (the fourth unit) represented by (Chapter Seven: Simple Conducts, the Eighth Chapter: the Kingdom of Plants, the Ninth Chapter: the Kingdom of animals), and (the fifth unit) represented by (Chapter Tenth: the environment and its components).

### 5. Determination of terms:

- 1) Imagination Strategy: It was defined by:

Mahmoud (2012) was defined as a strategy in teaching in which an imaginary scenario is formulated that accompany students on an imaginary journey and urges them to build a number of mental images in a series of ideas that are read by the teacher in which the eyesight, hearing, emotions and feelings are integrated. (Mahmoud, 23: 2012) .

The researcher defines her as a procedure: as a series of organized and planned steps by the School of Science in the formation of representative, imaginative positions prepared, contributes to the transfer of students of the second intermediate grade on an imaginary journey to form mental images that enable them to create a sensory image of these ideas in order to formulate them In a new image for a specific goal.

## 2) Existential intelligence defined by:

Eman Alkhafaf (2011) defined it as the ability to meditate on basic problems such as life, death and eternity, and Perhaps Aristotle and Jean -Paul Sartre are models that embody this type of intelligence, and many educational means and strategies associated with this type of intelligence can be designed. " 97).

The researcher defines him in a procedure: the overall degree obtained by middle school students (research sample) by answering the paragraphs of the intelligence measure prepared for that.

## **Section Two: Background Theoretical and Previous Studies**

### **Theoretical background:**

#### **1st. Active learning :-**

Active learning is "that type of learning that depends on participation and positive interaction of students in all educational situations in the classroom, which depends on a set of effective methods of playing role, brainstorming, problem solving, and decision -making, under the supervision and guidance of the teacher." (Khairi, 2018: 26).

#### **2nd. Imagination strategy**

The strategy of imagination is one of the cognitive and contemporary strategies that help the student in the activities and processes of learning and recall previous experiences. It also helps the student in mental preparation, directs him towards different methods of solving problems, and works to improve the student's levels of academic achievement. The students who are more skilled in the activities and practices of imagination are more superior in the visual educational situations and the verbal educational situations. They are also more able to recall past experiences in intertwined educational situations, and imagination strategies enhance familiarity with scientific concepts, focus attention, and use deeper levels of information processing and processing. (Youssef, 2020: 69).

#### **3<sup>rd</sup> Existential Intelligence**

Frankl (2003), quoting from Khudair (96:2021), pointed out that despite the controversy over the reality of existential intelligence, many specialized scholars have included it in the multiple intelligences because of its intrinsic value on the human march, and the disparity of their culture all over the world. And help them

to explain and realize the invisible cosmic matters and achieve the meaning or purpose of human existence in life, knowing the purpose behind the cosmic manifestations and thinking about everything that is original and new in life. Accordingly, existential intelligence provides a lot of educational and cognitive procedures as it corresponds to the variables that occur in different cultures. (2010, Roberts).

### Previous Studies

After reviewing the previous studies and literature, the researcher did not find any study that dealt with the strategy of imagination as an independent variable, nor any study that dealt with existential intelligence as a dependent variable.

### Section Three: Research Methodology and Procedures

#### First: Experimental Design:

The researcher chose the experimental design with partial adjustment as shown in Figure (1).

| Groups       | Independent variable | Dependent variable                                    | Tool                                                             |
|--------------|----------------------|-------------------------------------------------------|------------------------------------------------------------------|
| Experimental | Imagination strategy | Academic achievement<br>+<br>existential intelligence | Academic achievement test<br>+<br>Existential Intelligence Scale |
| Controller   | The usual way        |                                                       |                                                                  |

**Figure (1):** Experimental Design

#### Second: The study community and sample:

1. **Research community:** The current research community represents the morning intermediate schools for boys only affiliated to the Diyala Education Directorate / Baquba
2. **Study sample:** The research sample is divided into:
  - ❖ **School sample:** The researcher chose (Al-Hassan Bin Ali (P) High School) in Diyala Governorate / Baquba on purpose to conduct her research.
  - ❖ **Sample of students:** After the researcher chose (Al-Hassan Bin Ali (P) High School) to apply the experiment, she found that it contains two divisions, as shown in Table (1).

**Table (1):** distribution of the research sample to the experimental and control group before and after exclusion.

| No.   | Groups       | Number of students before exclusion | Number of excluded students | Number of students After exclusion |
|-------|--------------|-------------------------------------|-----------------------------|------------------------------------|
| 1     | Experimental | 41                                  | 1                           | 40                                 |
| 2     | Controller   | 39                                  | 3                           | 36                                 |
| Total |              | 80                                  | 4                           | 76                                 |

### Third: Equality of the two study groups:

The researcher was keen to conduct equivalence with the following variables: (the chronological age of the students calculated in months, the previous academic achievement of the students, previous information, the intelligence test), and the following is a table showing the equivalences above:

**Table (2):** Arithmetic mean, standard deviation, and the two T values of the study variables for the two research groups.

| Variables                        | Groups       | No. | SMA     | Standard deviation | Variance | Temp. | The two t values |         | Significant                   |
|----------------------------------|--------------|-----|---------|--------------------|----------|-------|------------------|---------|-------------------------------|
|                                  |              |     |         |                    |          |       | Calculation      | Tabular |                               |
| Chronological age                | Experimental | 40  | 166,250 | 12,082             | 145,974  | 74    | 0,579            | 2.000   | Not statistically significant |
|                                  | Controller   | 36  | 167,916 | 12,988             | 168,688  |       |                  |         |                               |
| Previous achievement of students | Experimental | 40  | 65,175  | 12,695             | 161,163  |       | 0,177            |         |                               |
|                                  | Controller   | 36  | 64,666  | 12,294             | 151,142  |       |                  |         |                               |
| IQ test                          | Experimental | 40  | 23,550  | 5,601              | 31,371   |       | 1,124            |         |                               |
|                                  | Controller   | 36  | 22,000  | 6,418              | 41,190   |       |                  |         |                               |
| Previous information test        | Experimental | 40  | 13,050  | 3,665              | 13,432   |       | 1,025            |         |                               |
|                                  | Controller   | 36  | 12,194  | 3,600              | 12,96    |       |                  |         |                               |

### Fourth: The search tools:

#### Procedures involved in building each of these two tools:

1. **The achievement test:** The researcher prepared the achievement test according to the following steps:

A- **Determining the objective of the test:** The test aims to measure the amount of information acquired by students of the second intermediate class (the research sample) during the duration of the experiment.

B - **Determining the number and type of test items:** The researcher adopted objective tests of the type (multiple choice) to measure Bloom's cognitive levels,

which are (remembering, understanding, application, analysis, synthesis, evaluation). The total number of test items reached (40) test items from Multiple choice type.

❖ **Validity of the test:** In order to ensure the validity of the achievement test, the researcher adopted two types of validity:

- **Apparent honesty:** the researcher distributed the achievement test, accompanied by the behavioral objectives and the specification table, to a group of arbitrators, and in light of their opinions, the percentage ranged between (85% - 100%), and therefore the test items were kept (40) items.
- **Content Validity:** The researcher prepared a table of specifications, and its validity was confirmed through the specification table, which was presented with the achievement test to a group of arbitrators.

❖ **The exploratory application of the achievement test:** The achievement test was applied in two stages:

- **The first exploratory application:** After verifying the validity of the test, the achievement test was applied in its first exploratory stage on Wednesday (12/1/2022) on a group of second-grade intermediate students in (Birir Intermediate School for Boys), where the number of students was (30) students. Its purpose was to know the clarity of the instructions, paragraphs and instructions of the test.
- **The second exploratory sample:** It numbered (100) students from the second intermediate grade in (Taleb Al-Zaidi High School for Boys) on Sunday (16/1/2022), and the students were notified a week before the test. The researcher extracted the coefficient of difficulty, coefficient of ease, discrimination and the effectiveness of the wrong alternatives for the achievement test by using the method of the two extreme groups (27%) for the upper group, which amounted to (27) students, and (27%) for the lower group, which amounted to (27) students from the sample of statistical analysis. After that, the scores for both the upper and lower groups were statistically analyzed for the purpose of extracting the psychometric properties of the achievement test.

❖ **Statistical analysis of the achievement test items:**

**First:** the difficulty coefficient of the test items: its value ranges between (0.35 - 0.68), and thus, the achievement test items are good and appropriate in terms of difficulty, ease and acceptable.

**Second:** Discrimination coefficient: the researcher found that it ranges between (0.22 - 0.55)

**Third:** The effectiveness of the wrong alternatives: limited between (0.03-0.22).

**Fourth:** Test reliability: The researcher verified the test's reliability by:

- Kewder-Richardson 20 method: The stability coefficient when calculating with this equation was (0.875).

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#### **Second: Existential Intelligence Scale**

For the purpose of providing an appropriate tool for collecting research data after the researcher reviewed previous studies, books and scientific and literary periodicals that dealt with the concept of intelligence in general and existential intelligence in particular to form the theoretical framework for the study and benefit from it in preparing the research, the researcher has adopted a scale (Shearer, 2005) as an appropriate tool to collect data.

**Fifth:** Statistical Means: In the research, the researcher used the (Microsoft Excel-2010) and the (spss) system by adopting the statistical means.

#### **Section Four: Presentation and Interpretation of Results**

**First: Presentation of the results:** The researcher prepared an achievement test for science and the existential intelligence scale, and it was applied to the two research groups, and after applying the two tests, the researcher corrected the papers of the two groups and wrote down their scores. (T-test for two independent samples) as shown in Table (3):

**Table (3): The scores of the students of the two research groups in the science achievement test and the Existential Intelligence Scale.**

| Variables                | Groups       | No. | SMA    | Standard deviation | Variance | Temp. | The two t values |         | Significant                            |
|--------------------------|--------------|-----|--------|--------------------|----------|-------|------------------|---------|----------------------------------------|
|                          |              |     |        |                    |          |       | Calculation      | Tabular |                                        |
| Test                     | Experimental | 40  | 23,225 | 3,158              | 9,972    | 74    | 3.830            | 2.000   | Experimental Statistically Significant |
|                          | Controller   | 36  | 20,472 | 3,102              | 9,622    |       |                  |         |                                        |
| Existential intelligence | Experimental | 40  | 48,200 | 3,283              | 10,778   |       | 4.769            |         |                                        |
|                          | Controller   | 36  | 43,027 | 5,925              | 35,105   |       |                  |         |                                        |



Through the results, it is clear that the students of the experimental group outperformed the students of the control group in the achievement test and the existential intelligence scale.

**Second:** Interpretation of the results: The (imagination) strategy encouraged students to have dialogue and discussion between them and the teacher, which led to recalling previous concepts related to good concepts, which makes the student more positive in the two educational processes, and the classroom environment in imaginative teaching helps to focus attention and develop intelligence, Perseverance in thinking and learning.

**Third:** Conclusions: Teaching according to the strategy of imagination contributed to improving the achievement of second-grade students in science in general and biology in particular, increasing their abilities to understand information, facts and knowledge, and raising their academic level.

**Fourth:** Recommendations: Inviting teachers to remove fears of using modern strategies, with the cost constraint they need. On the level of imagination strategy, it does not need huge potentials, but rather simple materials and means from the surrounding environment.

**Fifth:** Suggestions: The effect of the imagination strategy on achievement and reflective thinking among fifth-grade students in science.

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