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The Effect of Using (PDEODE) in Developing the Multiple Intelligences of third-stage students and providing them with the Basic Concepts of Psychology

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Abstract

This study aimed to investigate the impact of a teaching strategy known as PDEODE on the development of multiple intelligences and the acquisition of basic psychology concepts among third-year students in the Department of Psychology at the College of Education for Humanities, Tikrit University. The researcher employed an experimental method with a quasi-experimental design. The study sample comprised 30 third-year students for the academic year 2020-2021, divided into two groups: an experimental group and a control group. To collect data for the study, the researcher used two main instruments: a multiple intelligence scale and an achievement test designed to measure the acquisition of basic psychology concepts. The validity and reliability of these tools were confirmed using appropriate methods. Statistical analysis was carried out using the Statistical Package for the Social Sciences (SPSS 26), which included the calculation of the Cronbach Alpha coefficient to measure test reliability, as well as the computation of means and standard deviations of the study data. The analysis of the data involved the use of t-tests for two independent samples to assess the equivalence between the two groups. Additionally, analysis of covariance was conducted to determine the significance of differences between the average scores of the experimental group and the control group in terms of developing multiple intelligences and increasing students' ability to acquire basic psychology concepts. The study's results indicated statistically significant differences at a significance level of $\alpha = 0.05$. These differences favored the PDEODE teaching strategy, as it was found to be more effective in developing multiple intelligences among the students. Furthermore, the average scores of the experimental group students were significantly higher than those of the control group in terms of acquiring and retaining psychology concepts. In summary, the study demonstrated that the PDEODE teaching strategy had a positive impact on the development of multiple intelligences and the acquisition of basic psychology concepts among the third-year students in the Department of Psychology at Tikrit University. These findings provide valuable insights for educators and curriculum designers interested in enhancing the effectiveness of teaching strategies in psychology education.

Keywords: PDEODE, Scientific intelligence, Students, Third stage, Psychology.

Introduction

Interest in the teaching and learning processes emerged from advanced scientific systems all over the world, making the learner the focus of the educational process. Hence, many strategies and models

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emerged that focused on the positivity of the individual learner and learning about previous information to prepare a starting point for building his new cognitive environment.

Therefore, the researcher emphasized the use of such strategies in teaching, which helps provide the student with the psychological concepts present in the subject of psychology, provides him with psychological skills, and helps him form positive attitudes toward studying psychology.

The problem of the current research was identified with the urgent need to apply a teaching strategy that the researcher hopes will achieve good learning that will make students more effective in the educational process and increase their acquisition of some psychological concepts. The use of **(PDEODE)** may be among these models that contribute to achieving more effective teaching in removing Difficulties faced by students and raising their level of achievement and level of thinking.
In this way, the researcher defined the research problem in answering the following question:

1- What is the effect of using the (PDEODE) on multiple intelligences?
2- What is the effect of using (PDEODE) in acquiring concepts related to psychology?

Research Importance of the current research lies in the importance of the modern strategies used in teaching psychology, which is (PDEODE), which emphasizes linking science with technology society, and seeks to help students build their scientific concepts and knowledge through the four stages: (prediction, discussion, interpretation, and observation). Among them are two aspects: science and technology. Because These is consistent with constructivist theory models in several skills in a way that is consistent with the principles of knowledge that indicate the need to make the learner the center of the educational process.

Hence, the importance of the current study can be summarized as follows:

1- It is possible to provide psychology professors with a new strategy that contributor students of many concepts related to psychology.
2- The study contributes to solving an important problem in teaching psychology.
3- This research is considered one of the research projects that emphasizes making the learner a primary focus in the learning process.
4- (PDEODE) is considered one of the models that avoid memorization and memorization.
5- It is an attempt to implement a modern teaching strategy that is consistent with what modern trends in teaching psychology emphasize and is far from traditional methods.
6- Emphasizing the readiness of students in the third stage to learn using the (PDEODE).

Research objective:

The current research aims to **(the effect of using (PDEODE) on the multiple intelligences of third-year students and providing them with concepts related to psychology).**

Two research hypotheses:

1- There are no statistically significant differences at the significance level (0.05) between the average scores of (the experimental group students) who studied using (PDEODE) and the average scores of (the control group students) who studied in the usual way in developing multiple intelligences.
2- There are no statistically significant differences at the level of significance (0.05) between the average scores of (the experimental group students) who studied using (PDEODE) and the average scores of (the control group students) who studied in the usual way in the test of concept acquisition in psychology.

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Search limits:

The current research is determined by:

1- A sample of third-year students from the Department of Psychology, College of Education for Human Sciences, Tikrit University.
2- The first semester of the academic year.(2022-2021)
3- The third stage

Search terms

Firstly/ PDEODE

It is a teaching strategy based on constructivist education and consists of several steps, namely (prediction, discussion, interpretation, observation, interpretation). It is done by making the learner the center of the educational process by stimulating him by essay asking him a question, problem, or phenomenon, and the learner, in turn, predicts, justifies, analyzes and interpret s. (Al-Salamat 2016, p. 204).

Operational definition:

It is a teaching strategy based on constructivist theory. This model was taught to the students of the third stage, the experimental group, and the five stages were implemented, namely (prediction, discussion, interpretation, observation, interpretation).

and Second/ Multiple intelligences

-Multiple intelligences, the technical definition, is defined by Gardens as the ability to solve problems or create valuable products within cultural situations (Abu Hamad (2014).

-Multiple intelligences, the procedural definition in the responses of third-stage students to the questionnaire items prepared for this purpose.

Third/ Acquisition

It is the extent of the learners Knol earner's what the concept represents or does not represent through his attention to the teachers act teacher's activities, and then he processes the information in his own way to mat meaningful by linking it to the information he has before saving it in his memory store. (Al-Omar, 1990: 78)

Operational definition:

The learner obtains the experiences, information, and concepts through passing through several stages of the educational process Procedural definition.

Previous studies

The researcher presented previous studies (Arab and foreign) related to the variables of the current research ((PDEODE), multiple intelligences, acquisition of concepts related to psychology). These studies were arranged in the form of a table in which all the details related to them are explained, such as the goal of the study, the sample, and the variables (independent and dependent). Study tools (type, number of paragraphs, preparation), statistical methods, study results.

Studies on (PDEODE):

Study by Al-Lami and Al-Rubaie (2018)

This study aimed to identify the effect of (PDEODE) on the inclination towards chemistry among second-year intermediate students. The researchers chose an experimental design with partial control. The study was applied to a sample of second-year intermediate students in middle and secondary schools in Babil Governorate. Section (A) was chosen to represent the experimental group with a number of students (36) and Section (B) to represent the control group with a number of students (36). The researchers formulated behavioral objectives for the research topics, prepared a teaching plan and a scale to measure tendency, and all of them were presented to the experts. Validity and reliability were verified, and after applying the research tool and processing the data statistically, it was found that there were statistically significant differences in the tendency scale in favor of the experimental group.

Asharani's study(2018)

The study aimed to identify the effectiveness of using (PDEODE) in teaching science on developing achievement and creative thinking among primary school students. The electricity and magnet unit were analyzed and a teacher's guide was prepared in accordance with teaching according to strategy 27

The study sample consisted of (68) students from Sixth grade primary school students in Mecca were divided into two groups: an experimental group, numbering (33) students, who studied the chapter (Electricity and Magnetism) using (PDEODE), and a control group, numbering (35) students, who studied in the usual way.

The study used two tools: the achievement test and the creative thinking test. The results of the study resulted in statistically significant differences at the significance level (0.05) between the average scores of students in the experimental and control groups in the achievement test in favor of the experimental groups students. There are also statistically significant differences at the significance level. (0.05) between the average scores of the students of the experimental and control groups in the creative thinking test as a whole, and its sub-skills except originality, in favor of the students of the experimental group.

- **-Study Costo et al (2010).**

This study aimed to investigate the effectiveness of learning science through the (PDEODE) strategy in explaining the change in concepts in students' understanding of the concept of evaporation in Turkey. The study used the experimental method and the study sample consisted of (52) students in the first year at a Turkish university, with the aim of implementing the experimental treatment. The posttest was applied and the data was collected and analyzed. The results showed that there was a statistically significant difference between the averages of the students scores on the pretest and the average of their scores on the posttest in favor of the posttest, which indicates that the educational strategy helped the students to change alternative concepts and acquire a sound scientific understanding of the concept of evaporation .

Studies on multiple intelligences:

Al-Baladi Study(2016)

The study aimed to identify the most common multiple intelligences among female students at the upper primary stage in Jeddah Governorate, and to reveal statistically significant differences between the averages of the multiple intelligence's responses of the study sample members attributable to the

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independent variables: academic grade (fourth, fifth, sixth, achievement in mathematics (high, moderate),

To reveal the statistically significant relationship between the average responses of the study sample members to multiple intelligences and the level of academic achievement in mathematics, the study applied the multiple intelligences scale as a tool for collecting data, and the study sample included (501) female students.

The results showed that the total score for multiple intelligences was (average).

The results also showed that there were no statistically significant differences between the arithmetic averages of the study participants responses to multiple intelligences due to the variable of academic grade, fourth, fifth, and sixth.

The results revealed that there were no statistically significant differences between the arithmetic averages of the responses of participants in the study (intelligence level) depending on the variable of the level of achievement in mathematics. (High, average) 31 the differences were in favor of the group of high achievers in mathematics.

The results also showed the existence of a statistically significant (positive) correlation between intelligence (logical-mathematical-visual-spatial) and those with high achievement in mathematics.

Husseins study(2015)

The current research aims to find out the effect of teaching with multiple intelligence strategies on the achievement and attitude towards chemistry among first-year middle school students in middle and secondary schools for girls in the city of Baqubah / Diyala Governorate. The research sample consisted of two experimental groups, the number of members of which was (25), and a control group, the number of members of which was (32). The research tool is from an achievement test with (25) items and a measure of attitude toward chemistry (34 items). After applying the tools, the results showed that there was a statistically significant difference in favor of the female students of the experimental group who studied according to the strategies of multiple intelligences in the achievement test, as well as in the attitude toward teaching chemistry.

Theoretical framework

(PDEODE):

The development of education has had a significant impact on the progress of the educational process in all scientific fields by developing the ability to innovate and preparing generations capable of facing the future and its challenges and keeping pace with scientific developments taking place in the world. Since teaching methods, strategies and models are the foundation of the educational process, it requires supervisors of the process to Learning and those who specialize in this field must be fully knowledgeable about it so that the choice of strategy or method is compatible with the characteristics of the learner and his patterns of thinking (Khalil, 2020).

The traditional strategies and methods represented in discussion determine the learner's role in the educational process, and methodological books and study plans have a major role in restricting education because they focus on the teacher more than on the learner. As a result of this educational reality, the researcher decided to use modern teaching models and methods that increase the learner's effectiveness in Education and increases his thinking and creativity. Among these models and methods

is (PDEODE), as this strategy is considered one of the strategies based on the constructivist curve, as it is represented by a series of steps, which are (prediction, discussion, interpretation, observation, discussion and interpretation) (Al-Ahmadi, 2015: 146) Below is a detailed explanation of these steps :

1- Prediction: In this stage, the teacher presents a specific problem or topic, and the learner, in turn, predicts the results of this problem and provides justifications for the justifications he provided.
2- Discuss: At this stage, learners are divided into small groups, where a suitable atmosphere is created for them, allowing for the exchange of opinions, discussion, and the presentation and discussion of ideas.
3- Explain: Here the teacher asks each group to explain the problem or phenomenon presented to them and to exchange the results with other groups through group discussion.
4- Observe: In this stage, the learners observe changes in the problem or phenomenon, preferably individually or collectively, so that the learners test their predictions through experiments, and the teacher guides them to make observations related to the new understanding and directs them to reach correct results.
5- Discussion and Explanation: In this step, learners use the skills of analysis, comparison, and criticism for themselves and their colleagues by comparing the predictions and the conclusions that have been reached, and then they confront the contradictions that exist between the observations and predictions and resolve these contradictions in order to reach the correct information .

The importance of using (PDEODE)

It has become one of the Ministry's current concerns to improve the learning process, keep pace with scientific developments, develop learners' abilities, and use modern methods and techniques to achieve understanding. Al-Khatib (2012) emphasized that the quality of education and its results are only achieved through the learner's self-initiation and the methods used to achieve educational goals, as this is done with Strategies that lead to successful and effective teaching. Among these strategies is PDEODE, the importance of which lies in the following:

1- Make learners think scientifically, and this leads to the development of their thinking.
2- It provides the learner with the opportunity to practice basic scientific processes such as observation, prediction, and interpretation.
3- It gives the learner the opportunity to dialogue and discuss with his colleagues, which leads to developing the language of dialogue and helps increase self-confidence.
4- Developing learners' work skills.
5- It gives the learner an essential role in the learning process.
6- Encouraging learners to self-learn.
7- It takes into account individual differences among learners.
8- This strategy helps connect science with reality. (Qatami, 2013: 389)

The learner's role in (PDEODE):

The learner's role in (PDEODE) is represented by several axes, the most important of which are:

1- Answering the questions posed by the professor.
2- Understanding wrong answers with the support of other groups.
3- Justify the answers according to his conviction in them.
4- Discuss in detail with the teacher and the group.
5- Making comparisons. This is done through the required activities that he performs. (Al-Kubaisi, 2016).

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The role of the teacher in (PDEODE):

1- Allow learners to discuss among themselves.
2- Ensure that the learner masters the observation stage.
3- Verifying that learners have acquired the correct concept.
4- Spreading the spirit of competition and self-confidence among the learners .

Multiple Intelligences:

The educational view of the concept of intelligence has shifted from unified intelligence to individual intelligence, where intelligence has come to represent mental skills that can be developed through various teaching and training strategies through which the individual masters and masters them. Gardeners' views on multiple intelligences, which later turned into a theory in his name, since its appearance in the last century, it has brought about changes in educational practices, changed teachers view of their students and clarified the appropriate methods for dealing with them according to their mental abilities (Al-Sabbagh, 2007).

The concept of multiple intelligence theory:

If Gardner defines intelligence as the ability to solve problems and create problems to acquire new knowledge and create products and values of social importance, then it can be said that these three abilities can be achieved through nine qualities or methods that differ according to the type of each intelligence. Intelligence then takes on multiple aspects that make every individual He thinks and deals with certain situations in multiple ways. Therefore, Gardens confirms that every human being possesses different capabilities in intelligences, and every human being has a specific style of composing and synthesizing these intelligences.

Multiple intelligences are the mental skills that can be developed, which Gardner found, which are represented by nine intelligences: linguistic, logical, personal, visual, motor, musical, social, existential, and natural (Abu Hamad, (2014) as stated in Jaber (2003) .

Multiple intelligences grew out of his view that individuals who demonstrated great talent in areas as diverse as chess, music, athletics, politics, and entrepreneurship possessed abilities in these areas. Gardner was not focused on developing and interpreting psychometric tools in developing the theory of multiple intelligences and his subtle characterization of intelligence. Instead, he drew on research from evolutionary biology, neuroscience, anthropology, and psychology. By synthesizing relevant research across these fields, Gardner established several criteria for defining unique intelligence (Davis et.al., 2011).

The basic principles of the theory of multiple intelligences:

Al Darmaki identified a set of starting points on which (PDEODE), which are as follows: (Al Darmaki, 2007).

(1) Every person possesses all nine intelligences. The theory of multiple intelligences is not a type theory, but rather a theory of cognitive performance. It says that every person has the energies of all the intelligences, and of course, the eight intelligences work together in unique ways for each person.

(2) Most people can develop each of the intelligences to an appropriate level of competence. Gardner believes that every person is capable of developing all eight intelligences to a reasonable level of high performance if he is provided with appropriate encouragement and teaching.

(3) It is usual for intelligences to work together in a complex way, and Gardner points out that the existence of individual intelligences in the way we have described is just an illusion. None of these intelligences can be independent in real life, as intelligences interact with each other continuously and work in complex ways.

(4) There are many ways to be intelligent within each category. There is no codified set of characteristics that a person must possess in order to be considered intelligent in a particular field, so a person may be unable to read, but at the same time he is skilled in language because he can He tells an interesting story and has a wide oral vocabulary. People show their talents in intelligence in various ways.

The educational importance of the theory of multiple intelligences:

(1) The theory of multiple intelligences is a cognitive model that attempts to describe how individuals use intelligence.

Multiple intelligence is used to solve a problem, and this theory focuses on the processes that the mind follows in dealing with the content of the situation to reach the solution (Abu Hamda, 2014).

(2) Taking into account individual differences between students, as the existence of differences between students necessitates teachers to use multiple types of strategies to suit the multiple intelligences that their students possess**.**

(3)The theory presents a model of learning that has no specific rules except for the requirements imposed by the cognitive components of each intelligence. The theory of multiple intelligence suggests solutions in the light of which teachers can design new curricula (Abu Hamad, 2014).

(4) Encouraging learners to use critical thinking and logical thinking to confront different educational situations (Hussain et al., 2014).

(5) Helping the teacher expand the circle of his teaching strategies, to reach the largest number of children with different intelligences and learning styles, and thus it will reach the largest number of children, and the children themselves realize that they are able to express in more than one way any specific content (Abu Hamad, 2014).

(6) Modifying the role of the teacher from being the focus of the educational process to a mentor, guide, facilitator, critic, and creator (Hussein et al. (2014))

(7) Maintains the educational learning process with all its elements in terms of objectives, curriculum, teacher, learner, and strategic activities. (Hussain et al., 2014)**.**

Types of multiple intelligences:

1- Verbal-linguistic intelligence:

Linguistic intelligence refers to the ability to be good at using words, whether orally (telling stories) or written (written expression), to express one's mind. They also have good auditory skills to segment sounds and even visualize words through sensory perceptions. They also have skills in reading and writing, including creative writing, and word-related activities. The ability to use words in sentence construction, the ability to deliver public speaking, the art of persuasion, and the provision of textual interpretations. People with this type of intelligence have a high ability not only to learn many

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languages, but also to manipulate them. Linguistic intelligence is essential for writers, preachers, poets, novelists, and writers (Abu Hamad, 2014).

2- Logical-mathematical intelligence

Logical-mathematical intelligence appears at its basic level, in the individual's ability to carry out counting and classification operations on specific topics, know numbers, and link numerical symbols to their corresponding objects. This intelligence also appears at the more complex level in the individual's ability to carry out organized mathematical operations and calculations and employ a group of them. In solving problems, and possessing abstract thinking based on concepts and understanding mathematical procedures and various logical schemes, this intelligence also appears in the individual's ability to employ mathematical operations and find unknown quantities while solving complex problems and using logical thinking (Hussein 2014).

3- Visual spatial intelligence

It is the ability to accurately perceive the visual-spatial factor, and includes sensitivity to color, line, shape, nature, beauty, and space, and the relationships that exist between these elements. It includes the ability to visually depict and graphically represent visual or spatial ideas and the ability to orient oneself appropriately in a spatial matrix (Hussein 2014).

4- Interpersonal social intelligence

It is the ability to form personal relationships and to recognize the moods, desires, and motives of others. This intelligence can include sensitivity to facial expressions, voice, and gestures, the ability to distinguish between several different types of interpersonal signals, and the ability to respond effectively to these signals in realistic ways (Al Darmaki, 2007). In addition, understand their intentions

5- Personal intelligence

It is the ability to self-reflect, be aware of the internal emotional state, know oneself, and the ability to act adaptively based on that knowledge. This knowledge includes having an accurate picture of oneself, one's strengths and weaknesses, knowledge of internal psychological states, intentions, motivations, moods, and desires, in addition to the ability to self-discipline, self-understanding, and self-esteem (Al-Darmaki, 2007).

Basic concepts of psychology:

One of the most important things that a teacher benefits from educational psychology is his knowledge of the individual differences between students and their differences from each other in their emotional abilities and in their cognitive mental abilities (memory - remembering - forgetting - attention - sense of perception... etc.) and in their motivations or motivations for learning. We try to know each term or concept individually.

Learning:

Learning is one of the basic concepts in the field of psychology in general and in the field of educational psychology in particular. However, it is not easy to establish a specific definition for this concept, and therefore its definitions have varied.

If we compare the behavior of a young child with his behavior when he grows up, we will find that his behavior, which was characterized by random movements, has become characterized by regularity, speed, and accuracy. This is because he acquired a large number of experiences from the social environment in which he lived, and over time, he acquired things that were not He had it before. This

change and change in behavior resulting from the influence of acquisition and experience is what we call learning. Due to the many definitions of learning, we will try, albeit briefly, to mention some of them.

Learning is a change or modification in behavior and experience, resulting from a person performing a specific activity, in which the conditions of the external environment interact with the set of innate dispositions and motivations provided to the organism. (Al-Omar, 1990).

Learning is a process that results from the individual's activity and results in changes in his behavior. The individual acquires new means by which he overcomes his problems and satisfies his motives and needs through the process.

The relationship of educational psychology to general psychology

The relationship between them is like the relationship of the whole to the part. Psychology is concerned with studying human behavior in all areas of life, while educational psychology is concerned with human behavior in educational situations only.

Educational psychology benefits from the theories and principles of other branches of psychology, such as developmental psychology, social psychology, cognitive psychology, and others, due to their overlap. Educational psychology is the intermediate branch between education and general psychology due to its interest in the educational (educational and learning aspects) in the educational field and in the process is the same as it represents the outcome of the interaction between the teacher and the learners within the circumstances of the educational situations and the requirements of the study. (Al-Omar, 1990).

Search procedures

In this study, the experimental approach was used. The appropriate design for this approach was adopted, which is a design that tests concepts related to psychology, as it relies on two groups to whom this test was applied.

Research community:

The current research population consists of third-year students of the Department of Psychology, College of Education for Humanities, Tikrit University.(2021-2011)

The sample:

The third-year students of the Psychology Department were intentionally selected for the following reasons:

- Department management cooperates with the researcher to implement the steps of the experiment.
- Collaboration with the psychology professor.
- Stability and regularity of attendance since the beginning of the academic year.

The department included (30) students in the third stage in the College of Education for Humanities, divided into two sections. The first section (A) was chosen randomly to represent the experimental group, consisting of (15) students, and the second section (B) was chosen to represent the control group, consisting of (15) students as well.

Experimental design

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Experimental design is defined as a plan and work program for how to carry out the experiment. By experiment, we mean planning the conditions and factors surrounding the phenomenon that you are studying in a specific way. To achieve the objectives of the current research, an experimental design was chosen that included two equal experimental and control groups, as shown below:

Table (2) Experimental design for the experimental and control groups

The group	Independent variable	Dependent variable	Dependent variable scale
Experimental group	PDEODE	-Developing multiple intelligences -Acquiring concepts related to psychology	-Multiple intelligences test -Testing the acquisition of concepts related to psychology
Control group	The usual method		

Equivalence of groups:

Equality was conducted between the two research groups to control variables that may affect the results of the experiment through their interaction with the independent variable. Among these variables are:

- **The chronological age of students, calculated in months.**
- **Grades for the psychology subject for the third stage for the academic year 2021-2022.**
- **Intelligence test.**
- **The father's academic achievement.**
- **The mother's academic achievement.**

The T-test was used for two independent, equal samples to determine the significance of the differences in some of the variables mentioned before conducting the experiment, from which the calculated T-values for the variables were extracted and by comparing them with the tabulated value, the equality of the two groups was verified.

Table (2): Values for the arithmetic mean, standard deviation, and calculated and tabulated T value for the three variables

The group / Variables	Experimental (15) students		the control group students (15)		T value	
	Mean	Standard deviation	mean	Standard deviation	T	F
Chronological age in months	169.22	27.33	184.04	24.617	6.75 D.F 28	1.17
Previous psychology rate	88	8.15	74.11	12.16		1.28
IQ degree	25.32	12.11	39.22	13.34		1.18

Table (2) shows that all the calculated values are not statistically significant at the level (0.05), as they were less than the tabular value (6.75) and at the level of freedom (28), so the two groups are considered equivalent in the variables mentioned above. As for the variable of parents' academic achievement, after obtaining data related to this variable through the application form and the form that was submitted to the students, they were classified according to the type of educational certificate into four levels, namely (preparatory school and below, diploma and bachelor's degree). When using the results, there is no statistically significant difference when the significance level is (0.05), which means the equality of the two research groups in this variable.

Table (3) Calculated and tabulated chi-square values for the father's educational level

The group	Preparatory school and below	Diploma and Bachelor's degree	The total	Calculated X^2 value	X^2 tabular value
experimental	7	8	15	0.573	3.84
control	9	6	15		
The total	16	14	30		

It is clear from the table above that the calculated Chi-square value is (0.573), which is less than the tabulated value (3.84), at the degree of freedom (1). This indicates that there are no statistically significant differences at the significance level (0.05) in the educational level. For the father, and from this we conclude that the experimental and control research groups are equivalent in terms of the father's academic achievement .

Table (4): Calculated and tabulated chi-square value for the mother's educational level

The group	Preparatory school and below	Diploma and Bachelor's degree	The total	Calculated X2 value	X2 tabular value
التجريبية	7	9	15	0.128	3.84
الضابطة	10	5	15		

It is clear from the table above that the calculated Chi-square value is (0.128), which is less than the tabulated value (3.84). This indicates that there are no statistically significant differences at the significance level (0.05) in the educational level of the father. From this, we conclude that the two groups Experimental and control research are equivalent in terms of maternal academic achievement .

Experiment supplies

5 -1 Determine the content of the article:

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The prescribed subjects that will be taught to the study sample during the first semester have been determined and include some topics in the first and second semesters and the third semester of the psychology subject scheduled for the third stage due to their suitability to the stages of (PDEODE).

These topics are as follows :

- **Setting behavioral goals**

The behavioral objectives were determined and distributed at the three levels (remembering, understanding, and application) and presented to a number of arbitrators and specialists to determine their clarity and accuracy of formulation, the extent to which they include the specific objectives and content of the educational material, and to determine the level that each item measures. These procedures resulted in the distribution of the behavioral objectives.

- **Preparing study plans**

To implement the experiment, the researcher prepared the daily teaching plans required to teach topics related to the first, second and third semesters of the psychology subject for the third stage for both the experimental and control groups. The daily teaching plans were prepared according to (PDEODE) for the experimental group, and the daily teaching plans were prepared according to the usual method for the control group .

These plans were presented to a group of arbitrators, including teaching methods teachers and psychology professors, and their opinions and guidance were benefited from. The researcher approved the agreement rate as 85%

Sixth: Research tools:-

For achieving the research objectives, the researcher used the following tools:

Testing the acquisition of psychology concepts

- **Determine the test objective:**

The goal was set to measure the acquisition of psychology concepts among third-stage students, and the researcher relied on the definition that was specified in defining the terms.

- **Formulating test paragraphs:**

Relying on the theoretical framework and reviewing some previous studies related to the topic, the concepts related to psychology that were identified in the theoretical framework were identified. The researcher prepared the test, and the number of its items was (28), which included substantive and essay paragraphs. The correct answer was given a score of one and the incorrect answer was given a score of zero.

- **Validity of the test**

To verify the apparent validity of the test for acquiring concepts related to psychology, it was presented to a committee of experienced and specialized experts. The researcher relied on the opinions, suggestions, and directions of the arbitrators, and the percentage of agreement on the validity of the test items and their suitability to the level of students was (87%) or more. The items were modified according to the opinions of the test items. Gentlemen arbitrators.

- **Test stability:**

The researcher chose the split-half method, which is one of the most common methods for measuring reliability. The reason for this is that it avoids the disadvantages of other methods, because it is distinguished by its economy in the time required to administer the test, as it is applied in one go, and avoids giving students experience, as is the case with the re-test method.

The two researchers adopted the same sample scores for statistical analysis, and after correcting the answers, setting the scores, and using the Pearson correlation equation, the reliability coefficient reached (0.80), which is considered a good percentage**.**

(2-6)Achievement test:

The two researchers prepared a table of specifications that included the topics of the three chapters of psychology and the levels of behavioral objectives. The weight of each chapter was calculated according to the time allocated for teaching it in minutes, as shown in the table below :

Table (5): Table of specifications (test map) for the achievement test

THE CHAPTERS	NUMBER OF SHARES	TIME IN MINUTES	CONTENT WEIGHT	GOAL LEVELS AND WEIGHTS			THE TOTAL
				Remembering	comprehension	application	
				36%	40%	24%	100%
The first	19	760	%38	4	4	2	10
The second	15	600	%30	3	3	2	8
The third	16	640	%32	2	3	2	7
The total	50	2000	100%	9	10	6	25

After completing the table of specifications, (25) objective test items of the multiple choice type were prepared, and the validity of the content for the achievement test can be verified by preparing a table of specifications that takes into account the relative importance of each topic, and takes into account the different levels of learning outcomes.

- **Clarity of test items:**

The test was applied to a survey sample of (8) students in the third stage, other than the research sample. After applying the test, it became clear that the items were clear, as there was no inquiry from the students, and that the time taken to answer all the test items, after calculating the average time, was For all students, it was found that the appropriate time to complete the answer was (40) minutes. The test was then applied again to a survey sample other than the original research sample, which consisted of (40) third-stage students. After calculating the number of correct answers for each item, the difficulty coefficient equation was applied. For each paragraph of the test, it was found to range between (38%-75%); Test items are considered acceptable if their difficulty ranges between (20% - 80%).

The equation for the discriminatory power of objective questions was used, as it was found to range between (.25-0.55). These values are considered good, and discrimination is real if its discriminatory power is (0.20 and above) (All am, 2006: p. 116).

- **Test stability:**

The retest method was used on the research sample (28) students, and after more than a week had passed from the first application, the test was repeated for them again, and the Pearson correlation coefficient was used between the scores of the two applications. It was found that the reliability coefficient had reached (0.83), as the reliability coefficient is considered high if It reached (0.83). As for the second method: using the Keuder-Richardson equation (R20-K): to calculate reliability. Accordingly, and by

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relying on the data obtained from applying the test to the exploratory sample, it was found that the reliability coefficient is (0.86), and thus the reliability coefficient is Test well.

Statistical methods

1-8 T-TEST

In this research, the statistical methods listed below were used to reach the results of sample equality (the experimental group and the control group). It was also used to reach the results of the experiment between the two groups, as follows: -

1- T-test for two equal independent samples.
2- Pearson correlation coefficient.
3- Discrimination factor of objective paragraphs.
4- Essay paragraph discrimination factor.
5- Chi-square.

Results

- **Results related to the first null hypothesis**

The arithmetic mean and standard deviation were calculated for both the experimental group and the control group in the multiple intelligence test, and then we extracted the T-test for two independent samples as in the table below:

Table (6) The arithmetic mean, standard deviation, and t-value calculated in the multiple intelligence test for the two study groups (experimental and control)

group	number of students	mean	S.T	Calculated t value	Tabular t Value
experimental	15	8.165	1.553	4.732	2.056
control	15	6.766	2.112		

We find from the table above that the arithmetic mean of the experimental group's scores is (8.165) and its standard deviation is (1.553), while the arithmetic mean of the control group's scores is (6.766) and its standard deviation is (2.112). Using the t-test for two independent samples, it turns out that the calculated t-value reached (4.732), which means this value is greater than the tabular value at the significance level (0.05), which indicates that there is a statistically significant difference in the multiple intelligence test, and this difference is in favor of the experimental group .

- **Results related to the second null hypothesis**

The arithmetic mean and standard deviation were calculated for both the experimental group and the control group in the test for acquiring concepts related to psychology, and then the T-test was extracted for two independent samples as in the table below:

Table (7): The arithmetic mean, standard deviation, and t-value calculated in the test for acquiring concepts related to psychology for the two study groups (experimental and control)

group	number of students	mean	S.T	Calculated t value	Tabular t Value

experimental	15	8.033	1.731	2.354	2.056
control	15	6.833	6.833		

From the results table above, we find that the arithmetic mean of the grades of the students in the experimental group is (8.033), with a standard deviation of (1.731), while the arithmetic average of the grades of the students in the control group is (6.833), with a standard deviation of (6.833). Using the t-test for two independent samples, it turns out that the calculated t-value reached a value of (2.354). This means that this value is greater than the tabular value at the significance level (0.05), which indicates that there is a statistically significant difference in the test for acquiring concepts related to psychology, and this difference is in favor of the experimental group .

- **Interpretation of results**

We note from the results tables that the experimental group outperformed the control group in both tests. The researcher attributes this result to the effectiveness of (PDEODE) in developing multiple intelligences, as the six-dimensional steps enabled the third-stage students to increase their achievement, especially after they passed through the stages of this strategy.

The results of the test for acquiring concepts in psychology show that (PDEODE) has a major role in the experimental group's progress over the control group, as the researcher attributes this result to the effectiveness of (PDEODE) in providing students with concepts related to psychology, through matching its steps with the student's inclinations and increasing their motivation to do so. Learning, which helped them acquire many concepts of psychology .

Conclusions:

From the results obtained, the following can be concluded:

1- Using (PDEODE) reinforces the idea of education that makes the learner the focus of the educational process instead of the teacher.

2- It helps learners acquire many concepts related to psychology. Using (PDEODE) helps the learner to self-learn, which makes him more inclined to the educational process.

3- Enhancing self-confidence among third-stage students through dialogue and discussion with the professor and their colleagues.

Recommendations:

1- Training educational staff on (PDEODE) because it has been proven effective in this study.
2- Conduct a study to identify the effectiveness of this strategy in other educational stages.
3- Using the effectiveness of this study on dependent variables other than acquiring psychological concepts and developing multiple intelligences .

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