

Effectiveness of Vermunt Model in Creative intelligence among fifth-grade students in Philosophy and Psychology subject

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Abstract: The research aims to identify (Effectiveness of VermuntModel in Creative intelligence among fifth-grade students in Philosophy and Psychology subject), the researcher followed the experimental design with partial control for two experimental and control groups, the number of samples was (68). A sample of fifth-grade literary students from Al-Saada Secondary School for Girls - Baghdad Governorate Center was intentionally selected. The researcher analyzed the equality of the two groups statistically in terms of the variables (intelligence, previous achievement, gender and age calculated in months), The researcher teaches the two research groups. The researcher depended on the test tool of creative intelligence, and the apparent validity was verified and the stability coefficient was extracted. the researcher utilized statistical methods, including Cronbach's alpha equation and the independent samples t-test). the results showed:

There is a statistically significant difference between the average scores of the experimental group students who studied according to the Vermont model and the scores of the control group students who studied according to the traditional method on the creative intelligence scale in favor of the experimental group students. Accordingly, the first null hypothesis is rejected and the alternative hypothesis is accepted.

The researcher made several recommendations:

- Encouraging educational institutions and research centers to adopt modern models and strategies and include them in plans, activities and training to benefit from them in life situations in general and educational life in particular.
- The necessity of paying attention to creative intelligence due to its great importance in our current era.

Keywords: keyword 1; Effectiveness, Vermunt Model, Creative intelligence

1. Introduction According to the cognitive and technological development that the world is experiencing today and the accompanying effective changes in the lives of individuals and societies, modern educational systems are trying to develop their teaching methods and models to keep pace with the changes in order to work on finding appropriate solutions to the social and economic problems accompanying the movement of science and its development. Among the tools that can have a major role in this are modern teaching and learning methods, styles and models that are the main pillar on which the success of the educational process depends, as the method or models are appropriate to the educational situation, the desired educational goals are achieved in their cognitive, emotional and skill fields. Perhaps the use of social subjects teachers, including the Principles of Philosophy and Psychology in our schools, of traditional methods that emphasize teaching students

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the scientific material and neglecting important aspects of their personality such as developing the skills of innovation, discovery, imagination and developing their creative abilities, is what prompted the researcher to choose one of the modern cognitive structural models, which is the Vermont model, which may contribute to raising the level of creative intelligence to the desired level and experimenting with it in teaching the Principles of Philosophy and Psychology, For the fifth grade literary students in the intermediate and secondary schools of Baghdad Governorate, the researcher worked to define the problem of her research in a more accurate scientific manner. She conducted a survey study after preparing a questionnaire and distributed them to a group of sociology teachers in the intermediate and secondary schools of Baghdad Governorate, numbering (12) schools. The questionnaire included a question about the teaching method used by the school, as a number of teaching methods and common models were included and the school was asked to choose the method or model it uses. After obtaining their responses and analyzing them, it became clear to the researcher that the teaching method used was either lecture or discussion, and they did not use any method or model of the cognitive constructivist theory. Thus, the researcher confirmed that there are shortcomings in the methods and approaches used in teaching the Principles of Philosophy and Psychology subject, which do not help develop types of intelligence among female students, especially creative intelligence. It became clear that many teachers of this subject do not have sufficient knowledge about modern learning strategies and models. Perhaps this research will be a modest contribution to developing the teaching of the Principles of Philosophy and Psychology subject at the preparatory level and an attempt to adopt an important, Through the above, the researchers identified the problem of their research with the following question:

"What is the Effectiveness of Vermont Model in Creative intelligence among fifth-grade students in Philosophy and Psychology subject?"

Research Importin

The world is facing a tremendous development in information and successive changes in the field of knowledge, science and technology, which have become a distinctive feature of the current era. The progress and development of any nation has become linked to the extent of scientific and technological development achieved by those nations (Al-Kubaisi, 2012: 17). This great development in information and technology necessitates that the student learn how he can obtain information? How is he able to process it? The process of acquiring and processing information is just as crucial as the actual process of receiving it (Zaytoun, 1999: 17-18). As a result, education was created to assist people in learning as a human gift that raises both individuals and society to higher levels of development and advancement. Institutions and a number of parties are interested in it. Instead, it is the sole method that is used to help people develop their minds in a sophisticated manner that is in line with the current state of science and technology.

(Al-Hila, 1999: 29)

Since education serves as a tool to accomplish its objectives, it is a science that is accomplished by Education in general is no longer just transferring knowledge to learners,

but rather a process that is concerned with the growth and integration of the personal aspects of learners and teaching them how to think? Not how to memorize the study materials (Abdul Moneim, 2015: 50), the world is currently dealing with a massive information explosion as well as ongoing developments in science, technology, and knowledge, based on educational and scientific theories that have advanced the teaching and learning process, a plethora of contemporary teaching models, strategies, and techniques have surfaced in recent years. The constructivist theory is the most significant of these theories; it is based on fundamental knowledge and is one strategy for enhancing instructional strategies, models, and techniques (Zaytoun, Kamal, 2002: 189). The Vermont model is one of the models derived from this idea. Constructive learning processes have been associated with this approach, and its significance grows as it aims to emphasize and apply concepts and real-world applications, assisting both the instructor and the student in using them to solve issues and make decisions. This model seeks to give students exercises that, and aims to improve the quality of cognitive and metacognitive processes, and provide them with understanding and integration of learning by introducing the concept of metacognition and self-regulation, and based on the presence of three activities in learning: cognitive, emotional, and metacognitive, which contribute to building and using their knowledge, and providing teachers with With professional skills that prepare and qualify him for success in his work (Vermunt, 1998: 67).

The importance of the Vermunt model is highlighted by its interest in increasing students' ability to plan, direct, and select information processing activities. It is also interested in encouraging students to increase their responsibility by self-control over their achievement more than their reliance on the teacher's instructions. Hence, this model focused on teaching based on encouraging students to use high-quality activities and integrate them into the educational content, which works to develop their creativity (Vermunt, 2007: 88).

It illuminates how students approach the material to enhance, broaden, and commit to memory their knowledge through collaborative learning, as well as apply the study topics and approach them in a concrete (realistic) manner to discover connections between their studies and various real-world occurrences (Vermunt & Vermetten, 2004: 370–372), According to the Vermunt model, this is what the researcher discovered when she taught the fifth-grade Principles of Philosophy and Psychology course. It placed a strong emphasis on effective learning, which is concerned with the capacity to plan, carry out, and assess in order to prepare the material presented to students at a deep level, clear up their misconceptions, and encourage them to acquire high-quality educational activities and strategies and use them to boost the efficacy of their educational outcomes and foster creativity, Creativity is one of the most important educational goals that advanced human societies seek to achieve, as creative individuals play an important and effective role in developing their societies in the educational, social and technical fields. (Mona, 1993: 17)

The researcher's opinion is that our society now has behavioral, social, political, and educational issues and that we urgently need to focus on creative kids because they will be the men of tomorrow, advancing their countries and the world. Because the creative individual is a national treasure, a precious jewel that must be sought out and preserved for what he can contribute, our students desperately need our attention to develop their

mental and cognitive aspects in order to bring out their creative energies and direct them in the right and appropriate direction. Only then, after much effort, will our reality improve further.

from the above, the importance of the current research can be summarized in the following points:

1. The Vermont model is significant because it is one of the constructivist-based educational models that helps students develop skills and competencies that can be developed and grown in a variety of cognitive fields, encourages them to organize their learning, and gives them a way to process the information that is presented to them.
2. Increasing knowledge of mental and cognitive processes and applying them to enhance academic performance are the main goals of the Principles of Philosophy and Psychology course, which highlights the significance of teaching students how to process information and use it to the fullest extent possible for the benefit of both themselves and their communities.
3. The importance of creative intelligence as a skill that is an outlet for individuals' creative abilities in terms of fluency, flexibility, and originality.

Research objective:

The aim of this research is to Identify the Effectiveness of Vermunt Model in Creative intelligence among fifth-grade students in Philosophy and Psychology subject.

To verify from the research objective, the researcher used the null hypothesis:

There are no statistically significant differences at the level (0.05) between the average scores of the experimental group that studied the Principles of Philosophy and Psychology subject according to the Vermont model and the average scores of the control group that studied the same subject according to the usual method in creative intelligence.

Define terms

Effectiveness: Refer to Attia (2008): The ability to create an effect, and the effectiveness of something is measured by the effect it creates on something else" .(Attia, 2008: 61).

Vermunt Model (1998): Refer to integrated set of constructive learning processes and activities that provide learners with greater understanding and integration of learning by including the concept of metacognition and self-regulation, which contribute to their construction and use of knowledge. (Vermunt, 1998:33).

Intelligence: Refer to it means the completion of something and the speed of understanding. The origin of the word goes back to the saying, "The fire became intense and blazing." The same is said of the sun, war, and wind. It is also said, "So-and-so became intelligent," meaning his understanding was quick and ignited. (Al-Razi, 1978: 223).

Gardner's definition of intelligence: Refer to the ability to solve problems or create products that have value in one cultural environment or (Gardner, 1983, p. 98).

Creativity (Al-Razi, 1982): came as it was taken from the root B D (A): meaning (to invent) something without an example and God is the Creator of the heavens and the earth. Creator of the heavens and the earth) (Al-Baqarah (117) meaning (their Creator) and (the Creator) is the innovator and the poet innovated with the creative.. and so-and-so (innovated) in this matter meaning he is creative from it. (Al-Razi, 1982: 43-44).

Creativity (Al-Haizan 2002): the ability to invent something new without a previous example or the ability to find relationships between things that have never had relationships between them. (Al-Haizan, 2002: 12) & (Ramesh et al.2022).

Historical development of the Vermont model

Due to the quick advancements and successes in many facets of life, issues pertaining to the growth of education have become more significant and important in educational institutions. These issues have gained credibility because of the objectives they aim to accomplish and the methods they use to do so (Al-Zand and Hani, 2010: 2), In light of this development, the role of the learner in the teaching-learning process has shifted from a negative non-participant to a positive one, which is viewed as a source of interaction within the educational environment with the information and previous experiences he possesses, in light of which he builds new information and experiences that keep pace with this development, and the learner is considered an element in the evaluation, whether internal or external, as they work in an interconnected manner, one complementing the other, as the external evaluation aims to correct the path and develop the internal (self) evaluation of the learner (Al-Aasar, Suleiman and Amina, 2001: 9-14), The curricula and study materials have witnessed many improvement and development processes in the past years in terms of how educational and learning programs are built that organize information, whether this organization is based on the method or mechanism of presenting information to the learner, or by the learner himself (Al-Zayat, 1994: 354). The researcher finds that the process of organizing the study material into chapters or functional units as important inputs helps facilitate the processes of memorization, recall and learning for learners, and determines the type and quantity of information and ideas that they learn, which positively affects the mechanism of their memorization, and thus they can recall it when needed. (Al-Qaisi, 2008) states that the results of Piaget's research on the growth of concepts, which confirmed that individuals build their knowledge by themselves based on their previous information, knowledge and experiences, have made it necessary to make learners mentally and cognitively active in the classroom, and to rediscover the information presented to them and not just learn it, i.e. to give them the opportunity to learn functionally and in the field, theoretically and practically (Al-Qaisi, 2008: 215-216). In addition to what has

happened and is happening recently in terms of changes in the understanding of those in charge of the educational process of the nature of effective learning, many educational and teaching researches have shown noticeable challenges to traditional views based on superficial learning of the content of academic subjects in general and cognitive subjects in particular, as these researches described effective learning as deep learning based on constructive foundations (based on constructivist theory) that depend on building new and modern ideas about the nature of this type of learning and the learner's self-organization of information (In: Boyle et al, 2003: 268). In 1998, the Dutch psychologist Jon Vermunt at Utrecht University in the Netherlands developed a model for learning styles and information processing, which he called "constructive learning processes." It is based on the modern constructivist theory of learning, and he relied in building and developing his educational model on Flavell's views (1979) on metacognition (Vermunt, 1998: 43).

Vermont Model's components

First: Preparation

- a. Deep processing: This is done through:
 - Relationships and structure: This is done by linking parts of the study topics with each other, as well as with previous knowledge, and building parts of knowledge as an integrated whole.
 - Critical processing: Criticizing the interpretations and conclusions in the course and comparing them with the student's point of view and making his personal conclusions.
- b. tepwise processing: This is done through:
 - Remembering: Learning and retrieving by memorizing facts, concepts and lists of characteristics.
 - Analysis: Preparing the study topic step by step, studying the details and analyzing the theoretical components.
- c. Concrete processing: This is done by using the study content outside the context of the study, directing the student's attention towards its practical benefit, and linking the study topics to his personal experience.

Second: Organizing learning:

- a. Self-organization: Organizing the learning processes and their outcomes independently through (planning, monitoring, testing and evaluation), and reviewing some literature and books related to the content of the study.
- b. External organization: This organization is done through the questions posed by the teacher, the objectives and tests, and testing the student's progress in learning by answering questions and tasks.

Third: Learning mental models:

- a. Motivation (learning excitement) by encouraging the comparison of different theories that the student is studying.
- b. Cooperative learning: while working with other students in the classroom.
- c. Building knowledge: by finding or searching for relationships between study topics, and reviewing books and studies related to the educational content.
- d. Using clear and precise instructions that direct the student towards reproduction to benefit from the study content in his daily life.

Fourth: Learning orientations:

- a. A - Personal tendencies: Encouraging the student to study and care about study topics to enhance himself.
- b. B - Orientation towards obtaining a certificate (or qualification): Passing the exam, obtaining the certificate, and achieving high levels of academic achievement.
- c. C - Orientation towards self-testing: By testing the student's abilities himself to discover the extent of his mastery.
- d. D - Professional orientation: Choosing topics and studies to acquire professional skills, which prepare both the teacher and the student and qualify them skillfully and professionally for work.

(Vermunt, 1998: 153-154)

Principles and foundations on which the Vermont model is based:

1. Selection: the ability to distinguish between the main and secondary points of the subjects of the study content, and to place them in a table of concepts and link them.
2. Coherence: This includes linking the different parts of the subject, such as linking between parts of a single chapter or linking between different chapters of a book or course.
3. Critical reading of the subjects while trying to interpret, form an opinion and draw conclusions.
4. Sharing others' ideas and thinking styles, and thus the ability to develop other ideas.
5. Inference: The Vermont model allows the use of the inference method (induction and deduction) in presenting the study material and providing introductions and summaries of the topics included in the material.
6. Monitoring: The Vermont model attempts to follow the process and method of monitoring and focusing on imagining situations and study topics and transforming them into something tangible, and using books, studies and other literature about them, while making comparisons between them, and using diagrams to understand them, and linking theory to application.

(Al-Hussaini, 2006: 605)

Vermunt Model in the Teaching-Learning Process

Learning in Vermunt's model is an active process in which the learner forms, modifies and uses mental concepts of a subject and interprets situations within a specific field, and that learning patterns and methods are the result of the interaction process between the student's personal qualities or characteristics and the context of the educational environment, and as a result, the learning process differs by being affected by different contexts, environments and fields, and among these influences are academic discipline, prior education, age, gender and personal influences (Vermunt, 2007: 205) (Kadhim et al, 2024).

As for education, Vermunt & Vermetten (2004) show that in this model it is an integrated, interconnected process that depends on preparing and processing information in a constructive way through process-oriented instruction, i.e. the slow transfer of educational processes from the teacher to the student, and Vermunt found that when applying this type of education, learners, through guidance and reproduction, change their learning concepts in a constructive way (Vermunt & Vermetten, 2004: 359).

In the normal classroom environment, the teacher is the person responsible for what happens inside the classroom and how to measure the performance and expected results of the students. In this model, the teacher uses a behavioral pattern in his teaching method. This method encourages him to show an external organization process directed towards the students, which will help them to become learners with a reproductive orientation. The knowledge and awareness of both the teacher and the student of the teaching methods and activities and the processes in which learning and teaching take place will give them an opportunity to recognize their strengths and weaknesses. Awareness will help them to make an effort to become self-directed and develop communication skills with others.

(Robertson, Smellie, Wilson & Cox, 2011, 36-37)

Intelligence

The Latin word (Intelligential) first appeared at the hands of the Roman philosopher Cicero and this word became popular in English and French, and linguistically means mind, understanding and wisdom. The Arabs translated this word with the term "intelligence" (Abdul Khaliq, 1989: 279).

In daily life, individuals describe each other as intelligent. A student who excels in his studies is an intelligent student, a doctor who is successful in his profession is an intelligent doctor, and an individual who behaves tactfully in social situations is an intelligent individual. Is intelligence the ability to learn or the ability to adapt or succeed in work or create tricks? Does the daily use of the concept of intelligence give an accurate picture of its meaning? Can the concept of intelligence be taken as a basis for classifying individuals into different levels? And what results from this classification of various problems.

(Abu Harij, 2000, 79)

It is extremely difficult to give an adequate definition of intelligence, as it is linked to the ability to pass school, and the child's ability to deal with ideas, as it is closely related to language, symbols, and the meanings of words (Evans, 1973: 78).

Theories explaining intelligence

Since the beginning of the last century, mental measurement has tended to use statistical methods to reveal mental formation and to use the factor analysis method in particular, and to explain the factors resulting from this analysis and to name the different mental abilities that this type of statistical analysis had the advantage of revealing. As a result, several theories have emerged to explain mental formation and how mental abilities are organized, the most important of which are:

1- Spearman's two-factor theory:

This theory is the pioneering step in using the factor analysis method to reveal intelligence and different mental abilities. Its first results appeared in a study by Spearman in 1904 entitled *General Intelligence and its Objective Determination and Measurement*, and then he formulated it in a clear and complete manner in his book, *Human Abilities* in 1927 (Spearman, 1927: 77).

Spearman found positive correlations after applying a large number of tests to each other, some of which are characterized by a higher correlation than others. Spearman concluded using factor analysis of correlation coefficients between different tests that all branches of mental activity share one main function or group of functions while the remaining or specific elements are completely different in each case. On this basis, each mental activity can be analyzed into two factors:

- The general factor: It is a diagonal that is not affected by the environment and in which all mental processes share.
- The specific factor: It is subject to the environment's growth through education and training and is specific to the mental activity itself and does not appear in other activities. This explains that the correlation coefficients between intelligence tests are not complete or close to complete.

(Spearman, 1928: 261)

2- Thorndike's multiple factor theory:

Thorndike strongly criticized Spearman's theory, and did not initially acknowledge the existence of the general factor. Thorndike's opinion was that the result reached by Spearman was due to the nature of the tests he used and the small number of these tests. Thorndike's early research led him to say that the work of the mind is based on a large number of completely independent and fully specialized abilities. Therefore, his theory appears to be atomic, dividing intelligence into many molecules that take the form of neural connections in the manner described in his theory of learning. To understand Thorndike's point of view, we remember that he originally belonged to the behavioral school, and therefore he accepts that the stimulus-response unit is the basis for explaining behavior, meaning

that the occurrence of the response depends on the stimulus that calls for it, as each stimulus has its own response that occurs when the specific stimulus appears. Thorndike believes that the living being is born equipped with an unlimited number of these connections that link certain stimuli with their own responses in the living being.

(Thorndike, 1925: 67)

3 -Thompson's sampling theory:

Mental activity - Thompson believes - is based on samples or neural connections between the stimulus and the response (of the type of connections that Thorndike spoke about), and results from the overlap of groups of these samples, which decrease or increase according to the nature of the situations that the human mind faces. The mental process may extend to include most of these samples or may be limited to a limited category of them. Thompson does not deny the existence of correlations that indicate the general factor, but rather states that these correlations are the only type that exists. In his opinion, the reason for the emergence of these correlations in Spearman's research, from which he arrived at the two-factor theory, is that the tests he used were few in number and had common characteristics. If the number of these tests increased and their characteristics varied, other types of clusters could emerge that link some tests without other tests. This last type of correlation is explained on the basis of the existence of sectarian factors, which is the aspect that Thompson was interested in highlighting.

(Thurstone, 1949: 138)

Second: Creativity

Creativity is a decisive driving force for progress and success on both the personal and societal levels. Therefore, creativity has become an important topic in psychological research over the years and up until now.

Theories that Interpretation Creativity

The views of scholars and researchers differed regarding the interpretation of creativity. Some of them interpreted it according to cognitive foundations, and some of them interpreted it according to behavioral foundations. There are many foundations and approaches from which theories of creativity were launched, from these theories are:

1 -The esoteric theory

It is one of the oldest theories explaining the creative process, as this theory sees that creativity is the result of two things, the first: the intervention of external forces that cannot be explained, and the other: that the creative process occurs as a result of divine intervention. There are many esoteric theories, which are:

First: The theory of inspiration

The roots of this theory go back to Plato, who tried to eliminate the role of the mind in the creative process, and attribute the creative process to a hidden divine power. He interpreted creative works on the assumption that man is nothing but a creature that transmits heavenly ideas and divine will, and does not have a direct role in the creative process. Rather, the gods of art and science generate original creative ideas and breathe them into his soul and mind. The creator is a person who has been embraced by the gods, who have blessed him with revelation and inspiration. This theory was influenced by the religious tendency that was prevalent in Europe at that time, and it faced rejection because its interpretations are full of ambiguity and confusion.

Second: The theory of nature

Aristotle believed that creative processes are subject to the laws of nature, as this theory confirmed the role of nature in producing creative works that may occur automatically or by chance.

Third: The theory of genius

Kant believes that genius is a natural distinction stemming from the free imagination of the individual, and that creative and great people have nervous systems that differ from the nervous systems of ordinary individuals. In this regard, a number of researchers have tried to find out the part or parts responsible for creativity in the brain and the nature of its structure that enables it to perform unusual functions. This explains why scientists keep the brains of great geniuses to this day, such as Einstein and others, in an attempt to find out which areas of the brain represent the basis of the ability to create.

Fourth: The theory of heredity

Galton explains creativity as natural abilities derived from heredity, and that there is a relationship between creativity and genetic predisposition, and this theory is one of the biological theories. (Hamadneh, 2014: 12).

2- Behavioral theory

This theory, in its interpretation of the creative process, started from the principle of forming relationships or connections between stimuli and responses, such as Maltzmann's theory and Mednick's theory. The behavioral theory sees creativity as an organization of interconnected elements in new structures that match a certain benefit, and the more the new elements entering into the structure are separated from each other, the more creative the solution is, i.e. the evaluation criterion in the structure is the statistical frequency of the connections. Despite this, this theory has not received sufficient acceptance, because creativity cannot be explained based on the idea of finding connections. Other behavioral theories that explain creativity include the classical conditioning and operant conditioning theories, which agree on the importance of reinforcements that follow desired responses in developing creative behavior, by reinforcing them and excluding unwanted responses.

3- Psychoanalysis Theory

Those who follow this theory see that there are two main trends in it, the first: represented by the classical (traditional) psychoanalysis theory through the views of Freud, the founder of the theory, and the other trend: explained by Freud's students, headed by Adler, Jung and others, as he studied the biographies of a number of poets, writers, and creative artists, and reached in his study the concept of sublimation (elevation), and explained the concept of elevation through the internal conflict of the individual who remains repressed at the level of the subconscious, and that the reason for this conflict is the battle that takes place between the id, the ego, and the superego on the one hand and the controls of society on the other hand, so when the (id) wants to achieve its desires that may be contrary to society, the (ego) is unable to achieve those desires; because they violate the controls of society, so it enters into a battle of conflict with the (id), and here the (ego) reaches the stage of regression and repression; Therefore, it uses a defensive trick to get rid of the pressures of the id, as the sexual drive is elevated when it is suppressed and conflicts with a set of social controls, directing the individual towards socially acceptable things, and then it rises towards goals of positive value that satisfy society. (Abdul Aziz, 2006: 49-50).

4- Gestalt theory

The proponents of this theory, Kohler, Koffka and Freitmer, believe that creative thinking is insightful and intuitive thinking that usually begins with the presence of a problem that represents an incomplete characteristic or aspect (gaps), in one way or another, and when formulating a solution to the problem, the (whole) should be taken into account, while the parts should be examined within the framework of the whole, and the incomplete gaps should be filled in again to complete them.

(Khaled, 2015: 45) & (Sun et al, 2021)

5 - Humanistic theory

This theory was advocated by Maslow, Rogers, and Barbara Clark. They believed that creative abilities exist in all individuals and can grow and develop if they are provided with a suitable environment free of pressures. Therefore, this theory assumed that optimal learning is the learning that can lead the student to creative thinking. It believes that developing creativity is dependent on the conditions of mental health and psychological freedom. And that the happiness of the individual lies when he creates something spontaneously, that is, when his mind and emotions are at the peak of harmony. Accordingly, creativity, according to this theory, is the compatibility of the relationship between a healthy individual and an appropriate encouraging environment.

(Al-Tal, 2013: 36)

Characteristics of creative intelligence

- His intelligence is above average.
- His speed of progress towards mastery in work.
- His distinct sense of the environment around him.

- His sincere sense of satisfaction and psychological comfort in performing his work.
- His ability to provide a number of alternative solutions to a problem.

Characteristics of Creative Intelligence

- 1- Originality: the ability to produce new ideas and things.
- 2- Flexibility: the ability to look at things from different angles.
- 3- Usefulness and utility: the ability to apply and transfer.
- 4- Sensitivity to problems: the ability to see and find different solutions to them, and the ability to notice deficiencies and contradictions in the environment.
- 5- Creation: finding new combinations from old elements.
- 6- External openness: openness to the world, so he becomes closer to the things surrounding him, making his external world an integrated unit with his internal world.
- 7- Internal openness: openness to the internal factor, so his past events merge with the present and future in a natural, uncontrived manner.

(Shatnawi, 1990) & (R. Singh et al, 2022)

Literature review

First: Al-Aqabi study:(2018)

Study title: The effectiveness of an educational-learning program based on the Vermont model in achieving cognitive psychology among students of colleges of education and developing their productive thinking

Study location: University of Baghdad / College of Education - Ibn Rushd

Study objective: To identify the effectiveness of an educational-learning program based on the Vermont model in achieving cognitive psychology among students of colleges of education and developing their productive thinking

Results: There are statistically significant differences between the average scores of the experimental group and the average scores of the control group in the achievement test in favor of the experimental group, There are statistically significant differences between the average scores of the experimental group and the average scores of the control group in the post-productive thinking scale in favor of the experimental group.

(Al-Aqabi, 2018: a-r)

Second: Al-Abdali study (2022)

Title of the study: The effectiveness of a proposed program according to cognitive apprenticeship in developing functional reading skills and creative intelligence among fourth-grade literary students, Study location: University of Baghdad / College of Education - Ibn Rushd, Study objective: To identify the effectiveness of a proposed program according to cognitive apprenticeship in developing functional reading skills and creative intelligence among fourth-grade literary students

Study results: There are statistically significant differences between the average scores of the experimental group and the average scores of the control group in the functional reading skills test in favor of the experimental group.

There are statistically significant differences between the average scores of the experimental group and the average scores of the control group in the post-creative intelligence scale in favor of the experimental group. (Al-Abdali, 2022: d-r)

2. Materials and Methods

Since the experimental approach is appropriate for the nature of the study, has been adopted by multiple studies, and is one of the scientific research approaches used in educational and psychological research, the researcher used it to determine the effectiveness of the Vermont model in creative intelligence in the Principles of Philosophy and Psychology course for fifth-grade literary female students.

First: Research community

The community of this research is the fifth-grade literary students in all preparatory schools in the Second Rusafa Education Directorate - Baghdad Governorate for the academic year (2023-2024).

Second: Research sample

The researcher chose Al-Saada Preparatory School for Girls - Baghdad Governorate Center for the academic year 2023-2024, after obtaining the approval of the General Directorate of Second Rusafa Education, table (1) shows the sample size and its distribution.

Table 1: Divided of the research sample

No	Groups	students	students excluded	students after exclusion
1	A	35	2	33
2	B	36	1	35

Third: Equivalence of the two research groups

Although equivalency between the groups would be attained by random division, the researcher made the decision to guarantee that the students in the two research groups were equivalent before beginning the experiment., especially in the variables that affect the dependent variables, relying on the opinions of the arbitrators, which are:-

- 1 .Intelligence.
- 2 .Previous achievement (previous year average).
- 3 .Gender.
4. Chronological age calculated in months.

Controlling extraneous variables (factors affecting the internal integrity of the experimental design)

Controlling extraneous variables is one of the important procedures in experimental research, to provide an acceptable degree of honesty in the research results by attributing the effect on the dependent variable to the independent variable and not to extraneous factors (Abdul Rahman and Zangana, 2007: 478). In order for the researcher to ensure the internal integrity of the research, the following variables were controlled:

1. Experimental conditions and accompanying factors
2. Differences in sample selection:

2. Experimental extinction:
3. Statistical regression:
4. Measurement tool
5. Test situation
6. Effect of statistical procedures

Research tool

Test of creative intelligence: The female students in the research sample must have their creative intelligence measured for this study. In order to accomplish this, the researcher used the 20-paragraph creative intelligence exam that Al-Abdali had created. Given that the creative intelligence scale is a relatively modern scale and that the test developer extracted the discrimination, difficulty, and ease coefficients in addition to its psychometric properties, the researcher was pleased with the correction key's apparent validity and extracting stability (4,5, 3, 2, 1).

Results

Show the result related to the null hypothesis

To verify the validity of the hypothesis that states (there are no statistically significant differences at the level (0.05) between the average scores of the experimental group that studied the Principles of Philosophy and Psychology subject according to the Vermont model and the average scores of the control group that studied the same subject according to the usual method in creative intelligence), the researcher applied the creative intelligence scale to the two research groups (experimental and control) and the arithmetic mean and standard deviation of the scores of the students of both the experimental and control groups were calculated to know the effectiveness of the Vermont model in the creative intelligence of the students of the two research groups by comparing the two groups. The data were processed statistically using the t-test for two independent samples for statistically significant differences between the two groups. The results appeared as shown in Table (2).

Table 2: T-test results for the students of the two research groups in the post-test of creative intelligence

Groups	Students numbers	X	SD	variance	Degrees of freedom	t-test		Level of Significance 0.05
Experimental	33	66.606	5.273	27.805	66	calculated	critical	significance
Control	35	59.914	5.118	26.194		5.310	2.11	

Table (2) shows that the calculated T-value of (5.310) is greater than the tabular T-value of (2.011) at a degree of freedom of (65) and a significance level of (0.05), which indicates the existence of statistically significant differences between the average scores of the control group and the average

scores of the experimental group in the post-test of creative intelligence, in favor of the experimental group.

Interpretation of the results

The results showed that the students of the experimental group who studied the Principles of Philosophy and Psychology using the Vermont model outperformed the students of the control group who studied the same subject according to the usual method in the creative intelligence test, as the null hypothesis was rejected. The researcher explains this superiority to several reasons and factors as follows:

1. Using the Vermont model in teaching the Principles of Philosophy and Psychology course contributed to expanding the circle of knowledge and understanding among female students, making them decision makers, active participants, and more realistically aware of the problems and difficulties they face in order to achieve their goals.
2. Using the Vermont model had a clear impact on developing the students' ability to create and innovate, encouraging them to discover new information and knowledge, and raising the level of their creative intelligence.

Conclusions

1. Teaching according to the Vermont model has proven its effectiveness in creative intelligence.
2. The Vermont model has contributed to encouraging students to compete positively and create an atmosphere of freedom of opinion, asking questions and active participation.

Suggestions

- 1- Conduct a study similar to this study for other subjects such as: sociology, science.
- 2- Conduct a study similar to this study in other variables, such as productive thinking, social intelligence, and creative thinking.

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