The Impact of the Odd-One-Out Strategy on the Achievement of Fifth-Grade Literary Female Students in the Subject of Principles of Philosophy and Psychology

Saja Hasan Hadi[1], Dr. Fuad Ali Farhan[2]

Abstract

The aim of this research is to determine the impact of the "exotic item extraction" strategy on the academic achievement of fifth-grade literary female students in the subject of Principles of Philosophy and Psychology. To achieve this research objective, the following null hypothesis was formulated:

"There is no statistically significant difference at the 0.05 level between the average academic achievement scores of the experimental group, who study using the exotic item extraction strategy, and the average academic achievement scores of the control group, who study using the traditional method, for fifth-grade literary female students in the subject of Principles of Philosophy and Psychology."

The research sample was randomly selected from Al-Huda Girls' Preparatory School within the Tarmiya district of the Directorate of Education in Baghdad, Al-Karkh Third. Using random sampling, the experimental and control groups were selected from fifth-grade literary female students at Al-Huda Girls' Preparatory School. The experimental group consisted of 25 students from section (B), who studied Principles of Philosophy and Psychology using the exotic item extraction strategy. The control group consisted of 25 students from section (A), who studied Principles of Philosophy and Psychology using the traditional method.

The researcher adopted a two-group experimental design with pretest-posttest self-report. To test the research hypothesis, a achievement test was developed to obtain the required data. After consulting with teachers and experts, the test consisted of 40 multiple-choice items. This test was chosen for its ease of scoring, comprehensive coverage of the subject matter, quick response from students, and statistical accuracy of results.

The researcher began implementing the experiment on Tuesday, February 21, 2023, and concluded it on Thursday, April 20, 2023. Both groups received two classes per week. Thus, the duration of the experiment was equal and consistent for the students in both study groups. The researcher also personally taught both the control and experimental groups to ensure objectivity in teaching and to avoid the influence of external variables that could affect the accuracy of the experiment's results.

The researcher utilized the SPSS statistical software package for the social sciences to analyze the data statistically, using t-tests, chi-square, difficulty and discrimination indices, alternative item effectiveness, and the Kuder-Richardson 20 equation.

After completing the experiment, the results of the statistical analysis showed that the experimental group outperformed the control group in academic achievement. Therefore, the null hypothesis was rejected, and the alternative hypothesis was accepted, which states: "There is a difference in academic achievement." Statistical significance was found at the (0.05) level in academic achievement, with a significant difference between the mean scores of the experimental group and the control group, in favor of the experimental group that studied using the exotic item extraction strategy.

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[1] College of Education, Iraqi University, Iraq, Dr.fuadalif@gmail.com
[2] College of Education, Iraqi University, Iraq, Saja77637@gmail.com

Based on the results, the researcher made several recommendations and subsequently proposed suggestions.

Introduction

Problem Statement:

One of the persistent issues faced by educational practitioners and those involved in educational matters is the underperformance of learners across various subjects. This problem has been extensively researched, discussed in conferences, and the subject of numerous studies and research papers. Despite these efforts, some of the proposed solutions have not made significant scientific progress, leaving the problem unresolved and challenging for researchers.

Among the subjects facing challenges in terms of student achievement is the subject of "Principles of Philosophy and Psychology." For some educators, this subject is considered relatively straightforward, and some may adopt a superficial teaching approach, failing to engage students in a meaningful exploration of the subject matter (Attia, 2006: 250).

Numerous studies, such as those conducted by Al-Mushhedani, Al-Faraji, Ali, Ismail, and Al-Jubouri, have highlighted the problem of low academic achievement levels among students in the field of Principles of Philosophy and Psychology. Their findings consistently point to a decline in students' performance, indicating a deeply rooted issue that persists to this day. These studies emphasize the necessity of employing modern methods, techniques, and strategies that align with educational trends and developments to enhance the educational landscape and improve academic standards.

At the local level, several conferences have addressed this concern, including the University of Kufa's conference in 2010, which underscored the need for curriculum revision and the utilization of contemporary teaching methods and strategies to enhance the educational process (Al-Amri, 2013: 47). Certainly, here's the information without a summary:

Research Significance:

1. Empowering Learners: The researcher's field observations also highlighted a significant deficiency in the role of the learner in this subject. Ideally, learners should actively engage in the learning process, contributing effectively to the lesson's progression. This observation underscores the need for adopting modern teaching strategies that place the learner at the center of the educational process. Such strategies should aim to develop learners' critical thinking, problem-solving, and inferential skills. These modern strategies can break the monotony of traditional teaching methods, making students more enthusiastic about learning the subject. This positive shift can have a favorable impact on their academic performance and their ability to apply what they have learned in new situations. One of these strategies is the "strange item removal" strategy, which transforms the role of students from passive to active in the classroom.

2. Educational Role in Society: Education carries new responsibilities and tasks as it is the means by which society provides opportunities for its youth to grow holistically, developing physically, mentally, cognitively, emotionally, and socially. This holistic development can only be achieved if individuals learn how to harness and effectively utilize their potential. Schools play a crucial role in shaping individuals and preparing them for the workforce, contributing to the development of society. In the preparatory stage, schools have a vital role in molding students' academic and vocational inclinations, as well as helping them discover their identities and aspirations. The influence of schools continues to be profound and long-lasting, impacting students' intellectual, cognitive, and personal growth (Hermes and Youssef, 1988: 770-771).

Definition of Teaching Strategy:

A teaching strategy is a set of pre-planned procedures and measures devised by the teacher to be executed in the teaching process. These strategies are intended to be executed skillfully, achieving desired objectives within the available resources and conditions. Teaching strategies encompass various aspects, including the teacher's instructional skills, activity level, interaction with the subject matter and students (classroom interaction), and the effective utilization of the classroom space through movement and the use of instructional aids (Sorour, 2018: 23).

Active Learning Strategies Importance:

One of the distinguishing features of active learning strategies, including the "strange item removal" strategy, is the positive impact it repeatedly demonstrates across all elements of the teaching process, including inputs, processes, and outputs. Consequently, these strategies have become essential in various educational contexts, aligning with the active learning approach, individualized learning needs, and promoting the achievement of desired learning outcomes (Abdelsalam, 2006: 71).

The "strange item removal" strategy, based on active learning principles, places the learner at the center of the educational process. It encourages learners to utilize their cognitive abilities to creatively solve problems and situations. In this strategy, the teacher assumes the role of a facilitator, encouraging students to critically analyze phenomena, connect concepts, seek solutions, and explore unfamiliar terms and expressions.

This strategy makes students more active participants in the learning process, providing a sense of purpose and engagement. It transforms them from passive recipients of knowledge into active, inquisitive, and organized learners through the prescribed steps of the strategy (Abu Saadi, 2018: 238). Given the significance of academic achievement in educational objectives, educators and researchers in the field of education hold it in high regard. Academic achievement serves as a crucial metric for assessing students' progress, enabling them to transition from a state of educational weakness to one of proficiency and facilitating their acceptance into higher educational levels (Al-Mushhadani, 2010: 38).

Research Objectives:

The current research aims to investigate the impact of the "strange item removal" strategy on the academic achievement of fifth-grade literary female students in the subjects of Philosophy and Psychology.

Research Hypothesis:

There is no statistically significant difference, at a significance level of 0.05, between the average academic achievement scores of the students in the experimental group, who study using the "strange item removal" strategy, and the average academic achievement scores of the students in the control group, who study using the conventional method, in the subject of Principles of Philosophy and Psychology for fifth-grade literary students.

Research Scope:

- Geographical Scope: Governmental morning preparatory and secondary schools under the supervision of the Directorate of Education in Baghdad (Al-Karkh Third and Al-Rusafa First).

- Temporal Scope: Second semester of the academic year 2022-2023.

- Human Scope: Fifth-grade literary female students.

- Academic Scope: Topics covered in the Principles of Philosophy and Psychology textbooks taught to fifth-grade literary students during the academic year 2022-2023, first semester.

Definition of Terms:

1. Impact:

   - Linguistically: In the Arabic language, "impact" (أثر) refers to what remains of the imprint of something. "Impact" is used to describe what lingers as a mark or trace left by something. The verb "to impact" (تأثير) means to leave an effect or trace on something (Al-Zubaidi, 2007: 2007).

   - Technical Definition: It is defined as "the degree of change that occurs in the dependent variable after being exposed to the influence of the independent variable" (Al-Hafni, 1991: 253).

Definition of Terms (Continued):

1. Impact:

   - Shahata and Al-Najjar (2003): "The result of a desired or undesired change that occurs in the learner as a result of the teaching process" (Shahata and Al-Najjar, 2003: 22).

   - Ibrahim (2009): "The ability of the study subject to achieve a positive outcome, but if this outcome is absent and not achieved, the subject may be one of the direct causes of negative consequences" (Ibrahim, 2009: 30).

2. Strategy:

   - Linguistic Meaning: The researcher did not find a linguistic definition for the term in Arabic dictionaries as it is a foreign term.

   - Technical Definition: The term "strategy" has been defined in various ways, including:

   1. Al-Kayali (1986): "It is the science and art of carefully planning, designing, and sequentially and interactively formulating general plans to use resources (of various forms, wealth, and power) to achieve major objectives" (Al-Kayali, 1986: 169).

   2. Shabir (2006): "A set of procedures and means followed by the teacher that enables students to benefit from planned educational experiences and achieve the desired educational goals" (Shabir, 2006: 21).

   3. Al-Hashimi and Al-Dulaimi (2008): "A collection of ideas and principles that comprehensively and comprehensively address a field of human knowledge, setting out towards achieving goals, and then placing appropriate evaluation methods to determine the extent of their success and the achievement of the goals set by them" (Al-Hashimi and Al-Dulaimi, 2008: 19).

   4. Aliyan (2010): "A planned process carried out by following a set of organized procedures to implement the lesson and achieve its objectives" (Aliyan, 2010: 99).

   5. Zayer and Samaa (2015): "An extensive plan that includes a set of steps built from various theoretical frameworks, and these steps are grouped under one name called the strategy, to be applied in the field of education" (Zayer and Samaa, 2015: 125). The researcher adopted the definition of Zayer and Samaa theoretically.

Operational Definition: In the context of the current research procedures, it can be defined as follows: A planned and pre-designed process in the teacher's mind, carried out by following a set of organized methods to implement the lesson and achieve its objectives.

3. (The Odd One Out Strategy):

   - This is one of the active learning strategies based on a set of concepts, phrases, sentences, or drawings used to extract or identify something that does not belong to the group and to determine the common and different aspects between them (Ambo et al., 2019: 548).

- Operational Definition: It is a set of steps and procedures in which the teacher asks students to form pairs at the beginning of the lesson inside the classroom at the time they wish to apply the idea. The teacher presents a set of concepts or sentences based on the nature of the lesson and divides those sentences into subgroups. The teacher asks the students to identify the excluded item or the item that does not belong to the group and provide a justification for the sentences that were excluded. Then, a new set of sentences related to the topic is introduced, and the teacher engages in a discussion with the students about the subject.

3. Achievement

- Hamdan (1996): "It is a behavior or response that represents a set of knowledge, skills, tendencies, and observations in learners as a result of the learning process" (Hamdan, 1996: 10).

- Hassan and Al-Najjar (2003): "Everything that students acquire in terms of knowledge, skills, thinking methods, and problem-solving abilities as a result of studying what is prescribed for them in the textbook and can be measured by a suitable test" (Hassan and Al-Najjar, 2003: 89).

- Zayer and Samaa (2013): "A set of stimuli to which the learner responds, and he can recall them continuously and whenever he wants, because they are the result of a prior cognitive arrangement based on a series of ideas, and they are present in the learner's mind" (Zayer and Samaa, 2013: 156).

From the definitions above, the researcher's view of achievement revolves around the idea that it includes:

- A behavior or response resulting from learning.

- The presence of a pre-prepared test.

- The presence of a stimulus that leads to a response.

- Philosophy and Psychology:

- Philosophy: The researcher defines it based on Rasul (2011) as "coherent and consistent ideas that express a specific ideology in various ethical, political, moral, and aesthetic aspects, signifying abstract intellectual beauty in explaining nature, the individual, and society."

- Psychology: According to Rasul (2011), psychology is defined as "the science that studies the mental and psychological life of humans, including learning, memory, thinking, and analysis in both normal and abnormal states."

- Fifth Literary Grade:

- The fifth literary grade is the second grade in the preparatory stage, specifically the third level. It is a specialized grade where only humanities and literary studies are offered, as per the Ministry of Education (1977: 4).

- The Historical Roots of Constructivism Theory:

The roots of constructivism theory are not recent but can be traced back to the time of Socrates, Plato, and Aristotle. Elements of constructivism can also be found in the writings of Augustine, who emphasized the importance of sensory experience in seeking truth. The contemporary formulation of constructivism theory was influenced by various modern theorists, including the Italian philosopher Giambattista Vico, who argued in 1710 that human minds construct knowledge and can only know what they build themselves. Similarly, Immanuel Kant proposed that the human mind creates knowledge according to its own concepts and categories. However, these ideas were more applicable to the world of experience and did not extend to the world of infants (Qatami, 2013: 75).

- Constructivism in Learning Theories:

Constructivism theory asserts that individuals actively construct their knowledge by processing information based on their previous experiences and understanding. It emphasizes that learners create meaning for themselves as they interact with the world and that knowledge is not simply transmitted to them. According to Zayr and Sama (2016: 305), constructivism theory emphasizes that individuals learn effectively when they engage in actively constructing meaningful outcomes themselves. In this view, learners participate in tasks that lead them to build general concepts and acquire specific skills through experience and exploration. The term "constructivism" is derived from the Latin word "structure," meaning the way a building is constructed. In Arabic, the word "constructivism" implies something fundamental, essential, and unchanging (Al-Rubai, 2013: 83).

The constructivist perspective challenges the idea that the human mind is like a blank slate waiting to be filled with knowledge. Instead, it acknowledges that individuals have senses through which they receive stimuli and external experiences. However, constructivists, such as Piaget, argue that these ideas are incomplete. Learners cannot acquire knowledge solely through their senses; they must actively engage with specific situations, ask questions, and plan how to find answers independently. Teachers play a role in guiding learners through these experiences and helping them compare their knowledge with that of their peers (Al-Afwan and Hussein, 2012: 100-143).

Principles of Constructivist Theory:

1. Learners Construct Meaning Themselves: One of the fundamental principles of constructivism is that learners build meaning for themselves. This self-constructed knowledge is formed within their cognitive structures through the interaction of their senses with the external world. Learners connect new knowledge with what they already possess, aligning it with scientifically accurate meanings.

2. Learning Is Not a Result of Evolution: According to constructivism, learning is not a passive process that occurs as a result of natural evolution. Instead, learners are actively involved in their own development. It requires creativity and self-education from the students. Teachers should allow students to express their unique perspectives, generate hypotheses, and present their models as possibilities. The vitality of these contributions should be assessed (Al-Khaza'leh, 2011: 215).

3. Learning Is an Active, Continuous, and Directional Process: Constructivism views learning as an active, continuous, and constructive process. It involves the construction of new cognitive structures that organize and interpret experiences according to the learner's perception of the surrounding world.

4. Knowledge as a Fundamental Condition: Prior knowledge is a crucial condition for constructing new knowledge. The learner's new knowledge is interconnected with their prior knowledge, forming an essential component of the learner's understanding.

5. Social Negotiation and Discussion in Learning: Learning is not solely an individual process. Constructivism emphasizes the importance of social negotiation and discussion in the learning process. Learners do not only acquire knowledge through self-directed activities but also through discussions with others, where they can negotiate meanings together.

6. Real Problem Solving Facilitates Learning: To optimize learning, it is beneficial for learners to encounter real problems. This experience boosts their confidence in problem-solving abilities. Providing authentic problem-solving opportunities enhances the learner's readiness for learning (Al-Zubaidi, 2004: 31).

7. Viewing Students as Active Mental Participants: It is crucial not to perceive students as passive receptacles of information and knowledge. Instead, students are expected to actively engage their minds and interact with the presented material.

8. Student Responsibility for Their Own Learning: Students are encouraged to take on the responsibility for their own learning. They are expected to be self-directed learners who actively participate in their educational journey.

9. Knowledge as an Internal Process Linked to the Learner: The constructivist perspective posits that knowledge is an internal process closely tied to the individual student. Learning is characterized by self-directedness, recognizing that each student possesses unique learning capabilities (Al-Bari, 2010: 215-224).

3.1 Assumptions of Constructivist Theory:

Many educators agree on the ultimate goal of learning: to assist students in becoming independent, self-organized learners. This goal is rooted in two fundamental assumptions. The first is that knowledge is not fixed, and it cannot be merely transferred; instead, it is constructed by each individual through their experiences (Zaitoun, 2004: 221). The second assumption emphasizes that one of the most significant aspects students can learn is how to learn effectively.

The assumptions that reflect the characteristics of constructivism include:

1. Learning as an Active, Ongoing, and Purposeful Constructive Process: Learning is viewed as an active process where learners construct knowledge continuously and with a clear purpose.

2. Optimal Learning Conditions Through Real Problems or Tasks: Learners thrive when they face real problems or authentic tasks, as it creates an environment conducive to effective learning.

3. The Goal of Learning is to Adapt to Cognitive Challenges and Individual Experience: Learning is not just about acquiring facts but adapting one's cognitive abilities to deal with cognitive challenges and making sense of one's own experiences.

4. The Importance of Prior Knowledge: Prior knowledge is a fundamental prerequisite for building meaningful learning. In other words, learners build new knowledge upon what they already know.

Constructivist theory is grounded in two key assumptions:

1. The First Assumption: It relates to the acquisition of knowledge, emphasizing that individuals construct their knowledge based on their experiences and do not passively receive it from others. This assumption underscores that a person's knowledge is built through their interactions and experiences with the surrounding environment.

2. The Second Assumption: It highlights the role of prior knowledge as a crucial foundation for the construction of new learning. It posits that learners build upon their existing knowledge and that prior experiences and understandings are central to the learning process.

B. Concepts and ideas, among other knowledge structures, may not transfer from one individual to another in exactly the same way.

The second assumption in constructivist theory is that the function of cognitive processes is to adapt to the organization of the experiential, sensory world, rather than to discover absolute existential truth. In other words, the cognitive processes in constructivism are focused on adapting to and making sense of the sensory world rather than seeking absolute truths (Abdelsalam, 2001: 105-106).

From this assumption, we can infer that new knowledge is influenced by prior experience or previous knowledge. It involves the reconstruction (structuring) of the cognitive

structure in the learner's mind, which can include modifying, replacing, or deleting previous mental images. The final knowledge becomes a prior knowledge for future learning, which the learner uses in subsequent learning processes. This highlights the importance of learners actively constructing their knowledge. Learners should actively seek new ways of thinking about the surrounding world rather than passively receiving information from the environment. Learners integrate new information with their existing cognitive structures (Clements & Battista, 1990: 350).

Constructivist Theory Fundamentals:

The foundation of constructivist theory is built upon several principles. Firstly, it emphasizes that constructing knowledge is more effective than presenting it in a ready-made form. Secondly, it asserts that the collective knowledge of a group surpasses the sum of individual knowledge. Thirdly, it underscores the importance of making learning a positive rather than a negative experience for the learner. To implement these constructivist strategies in the realm of education, it is essential for educators to provide an appropriate learning environment that facilitates educational experiences conducive to knowledge construction. Consequently, the constructivist approach places strong emphasis on critical thinking, comprehension, inference, and the application of knowledge, without neglecting fundamental skills (Khalil, 2007:179).

Furthermore, the learning process within constructivism is a collaborative endeavor that involves active participation and sharing of knowledge and information among all participants. This includes the open exchange and acceptance of different perspectives, ultimately leading to the achievement of desired learning objectives. Constructivist learning thrives when students are faced with genuine problems, as this type of learning aids in constructing meaning (Burkam, 2005:35).

Active Learning and Constructivist Theory:

Active learning is an integral component of constructivist theory and is deeply rooted in the philosophy of active learning. Consequently, active learning, also known as (Active Learning), has emerged as a natural outcome of global and local variables in terms of both theoretical contemplation and practical application. It is closely tied to the learner's life, their needs, realities, and the demands of life itself, including the skills required in the job market. Active learning is grounded in the principles underpinning constructivist theory, which are rekindled in both the processes of learning and teaching. To put it differently, active learning can be seen as the other side of the constructivist coin. By examining the principles upon which active learning is founded, it becomes evident that it relies on the constructivist approach that emphasizes the learner's active role in constructing their own knowledge. This occurs through their interaction with their surroundings, which contain various variables and elements. The learner builds their knowledge, shapes their cognitive structure, and makes modifications based on new cognitive developments. In essence, active learning signifies an internal learning process that hinges on an individual's engagement and positive interaction with learning situations. Importantly, in active learning, knowledge is not transmitted from external sources to the learner; rather, the learner actively constructs it through their cognitive activity. They give meaning to their cognitive structure by connecting new information with prior knowledge and representing it as an integral part of their cognitive framework. This is achieved through the discovery of links and connections between previously acquired knowledge and newly acquired information. Thus, this underscores the interrelation between active learning and constructivism, emphasizing the pivotal role of prior knowledge activation in the construction of new knowledge (Atiya, 2018:35).

Therefore, active learning, as an educational and pedagogical concept, extends beyond teaching strategies alone. It emphasizes the comprehensive integration of three main elements: educational activities and scientific applications, academic content, learning and teaching strategies, and teaching aids aligned with the goals and content. It strongly

underscores the learner's active and essential role in acquiring skills, knowledge, habits, values, and inclinations through engagement in a learning community. If the curriculum aims to achieve holistic student development, active learning significantly contributes to this process by aligning with its objectives. Consequently, active learning becomes an indispensable and integral part of the curriculum. Through active learning, students acquire various skills and competencies that are challenging to attain within a traditional classroom setting, such as collaboration with others, self-reliance, self-management, and collective participation (Rafai, 2012:59).

Secondly, in the constructivist theory, which is rooted in philosophy and constructive thought, it has developed various teaching strategies that serve as practical translations of constructivist principles in education. Among these strategies are:

Problem-Centered Learning Strategy:

This strategy is one of the constructivist approaches that primarily rely on collaborative and cooperative learning. It offers learners the opportunity to construct meaningful knowledge by connecting their prior knowledge and integrating it with what they are learning. This strategy begins by presenting a real problem or situation that learners must tackle. Their role involves analyzing the problem and working together to find suitable solutions using the knowledge and skills they acquire. The strategy comprises three fundamental elements: tasks, small groups, and participation (Bergoth, 2008:6).

Generative Learning Strategy:

This strategy emphasizes that learning occurs through cognitive construction, resulting from building subsequent learning on prior knowledge. Learners construct knowledge more than they receive it passively. They achieve this by utilizing their previous knowledge in new learning and building upon it to develop new knowledge. In this approach, learners actively construct knowledge rather than acquiring it passively from others. Meanings are formed in their minds through the interaction between their senses and the external world. Knowledge is acquired by adapting to new experiences encountered in their surrounding environment (Abdelsalam, 2001:151).

Analogy-Based Teaching Strategy:

This strategy is rooted in constructivist learning philosophy. It aims to clarify unfamiliar concepts for learners by comparing them with familiar situations or concepts they already know. It is used in teaching to leverage prior experiences in acquiring new knowledge, essentially making use of the learners' previous cognitive structures to build new learning (Youssef, 2017:188).

Odd-One-Out Strategy:

This is one of the active learning strategies that involve presenting a group of concepts, phrases, sentences, or drawings and identifying what does not belong to the group. Learners are tasked with determining commonalities and differences between these elements (Ambo et al., 2019:548).

Active Learning Strategies:

Active learning strategies, in general, encompass the processes and methods employed by educators to enhance learners' retention and recall of information. These strategies aid learners in dealing with new learning tasks, processing information, and identifying the most suitable learning strategies based on factors such as the learner's characteristics, age, cultural background, learning goals, learning environment, timing, and duration of learning (Shahin, 2010:18).

The theoretical foundation for active learning lies in the use of a variety of teaching strategies within the classroom. Relying on a single strategy cannot be applied to all educational situations and for all learners. Active learning strategies are nested within the

constructivist thinking paradigm, which is based on the principles of engaging learners in diverse activities, encouraging them to think and reflect on their educational experiences, considering prior knowledge, and providing feedback during the learning process. Active learning strategies can achieve these principles by offering educational opportunities for learners to engage in listening, reading, discussion, reflection, and problem-solving (Bdaiwi, 2010:36).

Active learning strategies encompass all the methods, procedures, and behavioral patterns planned by the teacher and executed by the learner in the teaching-learning situation. This encourages learners to actively engage in thinking processes to address specific educational situations encountered within the classroom. This occurs within a rich and diverse learning environment that allows for positive listening and active participation. Learners take on their roles through constructive dialogues arising from rich discussions and conscious thinking and thorough analysis (Al-Aal, 2010:418).

The active learning approach encompasses various strategies, and the reason for this diversity lies in the fact that this type of learning is based on the learner's activity and effort during the learning process. Teachers must consider that there is no one-size-fits-all method or strategy; instead, they should choose approaches that are suitable for specific lessons and align with the nature and characteristics of the learners. These strategies contribute to improving the students' performance (Abu-Odeh, 2008, p. 28).

In active learning, the roles of teachers and students are redefined. Teachers are no longer the sole source of information; instead, they play multiple roles as facilitators of learning, guides, and mentors. They create an environment conducive to learning, combining these roles to promote students' growth and achieve the desired educational objectives. In active learning, the learner's role differs significantly. It centers around the student, who actively engages in the learning process. Students observe, compare, interpret, and discover relationships effectively and seamlessly within the classroom environment. Active learning empowers students to take responsibility for their own learning and self-directed education, creating opportunities for innovation and collaborative work (Ali, 2011, pp. 240-241).

"I will watch" is a passive stance, whereas "if you leave me to experiment, I will learn" is a clear invitation to experiential learning. This exemplifies a feature of active learning. When Jean-Jacques Rousseau, an educator of the eighteenth century, emphasized the necessity of experimentation, the use of the senses, and the freedom to practice in learning, he highlighted the importance of engaging the mind and drawing conclusions from real-life experiences. Similarly, in the nineteenth century, American educator John Dewey stressed the role of life experiences in stimulating the learning process and the interaction between individuals and society. He emphasized that knowledge is derived from experience and gains importance through scientific inquiry (Atiya, 2018, pp. 27-28).

In light of the rapid evolution and the information explosion occurring in our current era, the educational system must adapt to this monumental change in all its components. The recommendations of the scientific conference for the development of secondary and higher education have underscored the necessity for a paradigm shift in the philosophy and objectives of education. This shift moves away from traditional teaching, which relies solely on the teacher and their competence, and transforms education into an active learning process centered around the learner.

Figure (1) (active learning strategy) prepared and designed by the researcher

The researcher's name, year, and location of the study)	Research title	Research aim	Research sample	Research Methodology	Research tools	Statistical tool	Results
1 -Al Haddad (2014) Palestine	"The Impact of Using a Proposed Strategy that Utilizes Analogies and Contradiction s on Enhancing Critical Thinking and Achievement Levels in the General Science Subject among Tenth-Grade Female Students in Gaza."	1- Investigating the Impact of Using a Proposed Strategy that Utilizes Analogies and Contradiction s on the Academic Achievement of Tenth-Grade Female Students in General Science in Gaza Compared to Conventional Methods. 2- Assessing the Effect of Employing a Proposed Strategy that Utilizes Analogies and Contradictions on Enhancing Critical Thinking Skills in Tenth-Grade Female Students' General Science in Gaza. 3- Examining the Correlation between the Mean Scores of the Experimental Group in the Application of the Achievement Test and the Critical Thinking Test.	"The sample consisted of 88 female students, with 44 in the experimen tal group and 44 in the control group."	"The experimental methodology" or simply "The experimental approach."	1- Achievement Level Assessment Test 2- Critical Thinking Test	A t-test for two independent samples, effect size (Cohen's d), to find the effect size.	The study found statistically significant differences at a significance level of 0.05 between the mean scores of the students in the experimental group and the mean scores of the students in the control group in the post-application of the critical thinking test. Also, there are statistically significant differences in favor of the experimental group at a significance level of ≤ 0.05 between the mean scores of the students in the experimental group and the mean scores of the students in the control group in the post-application of the achievement test.

2- Faiaz, Iraq (2017)	The impact of the analogies strategy on the development of complex thinking among second-grade middle school students in the Arabic language subject.	"Identifying the Impact of the Analogies Strategy on Developing Complex Thinking among Second-Year Middle School Students in the Arabic Language Subject in 2019."	A sample of (60) second-grade middle school students is composed of students from morning schools, with the experimental group consisting of (30) students and the control group also consisting of (30) students.	"Experimental Method"	Thinking test	"Paired Independent Samples T-Test with a Correlation of 0.20"	The results indicated the superiority of the experimental group, which was taught using the peer-assisted learning strategy, over their peers in the control group, who were taught using the conventional method, in the complex thinking test.
3- Zyad(2020) Suadia	The Impact " of the Analogies Strategy in Science Teaching on Academic Achievement and the Development of Innovative Thinking Skills among First-Year Middle School Female ".Students	Defining the " .1Investigating the Impact of Using the Analogies Strategy in Science Teaching on the Achievement of First-Year Middle School Female Students". " .2Exploring the Impact of Utilizing the Analogies Strategy in Science Instruction on the Development of Innovative Thinking Skills among First-Year Middle School Female Students".	"The research sample included (60) female students from the first year of middle school."	"The experimental curriculum" or simply "The experimental approach."	1. Achievement Test 2. Inventive Thinking Skills Assessment	1. Holsti's Equation for Calculating Content Analysis Reliability involves the stability of the analysis, the coefficient of difficulty, the coefficient of discrimination, and the Kuder-Richardson (21) coefficient, along with the T-Test. 2. The Modified Ena Square (12).	"The results indicated statistically significant differences at a (0.05) level of significance between the average scores of the experimental group and the control group in both the achievement test and the innovative thinking skills test, in favor of the experimental group. Furthermore, it was concluded that the use of the analogies strategy in teaching science had a significant impact on the achievement levels and the development of innovative thinking skills among first-year middle school female students."
4 -Al tamemi (2022) Iraq	"The Impact of the Odd-One-Out Strategy on Enhancing Grammatical Concepts Acquisition for Second-	"Exploring the Impact of the Odd-One-Out Strategy on Acquiring Grammatical Concepts for Second-Year Middle School	"A sample of second-grade students from morning government middle schools	"The experimental curriculum" or "The experimental methodology."	"A test for acquiring grammatical concepts."	kai-square (T test) Intelligence test, difficulty factor, discrimination factor,	"There is a statistically significant difference at a significance level of (0.05) in the average scores between the

Year Middle School Students."	Students."	consisted of a total of (79) students, with (40) in the experimental group and (39) in the control group."			Cronbach's alpha equation, and the effectiveness of false alternatives	experimental group students who are taught Arabic grammar using the 'Odd-One-Out' method and the control group students who are taught Arabic grammar using the traditional method in the acquisition of grammatical concepts, in favor of the experimental group."

Research Methodology and Procedures

Firstly: Research Method

The researcher adopted the experimental method, which is known as the Experimental Method. This method involves conducting experiments and applying practical solutions to test the hypothesis under investigation. The experimental research goes beyond quantitative and qualitative descriptions of phenomena to manipulate variables under controlled conditions to determine how they occur or to identify their effects on other variables (Abdulrahman and Zankna, 2006: 474).

Secondly: Research Procedures

1. Firstly: -Experimental Design: The experimental method requires the adoption of an experimental design to execute the research and test its hypothesis. Therefore, the researcher selected the design of a non-randomized control group with a posttest. The appendix (3) and table (2) illustrate this

Table (1) The experimental design used in the current research is as follows

The posttest	The independent variable	Equivalence
Achievement test + Creative thinking test	The strategy of extricating the foreign element	
	The traditional method	

Secondly:- The research community

By 'research community,' we mean all individuals or entities that constitute the subject of the research problem. In other words, it encompasses all elements related to the study's problem that the researcher seeks to generalize the study's results to (Al-Zubaidi et al., 1981: 87).

The research community in this study comprises (15) secondary schools, with these schools falling under the jurisdiction of the (Third Al-Karkh/First Al-Rusafa) directorates. Table (3) illustrates this.

Table (3) Research Community for Fifth Grade Literary Stream Female Students

N	School Name	Number of Students
1	Thaibah	19
2	Ibn Asaker	7
3	Al-Haramain	9
4	Al-Mushahadah for Girls	27
5	Al-Jahiz	27
6	Al-Huda for Girls	51
7	Al-Tajdeed	26
8	Al-Baraq	7
9	Fatimah Al-Zahraa for Boys	25
10	Ibn Sina for Girls	12
11	Al-Rafidain for Girls	41
12	Al-Istiqlal	52
13	Al-Nu'man	38
14	Al-Itidal	62
15	Al-Fawz	56
Total		459

Thirdly:- Research Sample

The researcher employed the random selection method from among the (15) schools to choose (Al-Huda for Girls) secondary school, which includes two classes of fifth-grade literary stream female students. The total number of students in Class (A) was (25) students, and in Class (B), it was (26) students. The researcher then excluded one student from Class (A) due to her enrollment in the same class, resulting in a final group count of (25) and (25) as illustrated in Table (3).

Table (3) Research Sample

Groups	Number	"The excluded students"	"The net total"
Class (A) - Al-Huda	25	None	25
Class (B) - Al-Huda	26	1	25
Total	51	1	50

Fourth:- Equivalence of the Two Research Groups

Before commencing the experiment, the researcher took care to ensure equivalence in some variables that could affect the experiment's validity. She balanced the research groups in terms of the following variables:

1. The chronological age of the students, calculated in months.

2. Half-year grade for the Principles of Philosophy and Psychology subject for the academic year (2022-2023).

3. The Raven Intelligence Test.

4. Educational attainment of the parents.

The researcher collected the data and controlled for extraneous variables.

5. . Controlling for extraneous variables:

1- Factors Influencing the Internal Validity of the Experimental Design:

A. Experimental Events: These refer to natural events that might occur during the experiment (such as rain, war, earthquakes, and other accidents) that could affect the

experiment's validity. This factor was controlled as both research groups did not experience such events during the experiment.

B. Maturation: This involves "internal changes in individuals over time, which may occur through the study. Biological and psychological maturation factors may affect some individuals in the sample, leading to physical, social, emotional, or cognitive changes" (Abu Al-Am, 2011: 209). The experiment began on Tuesday, February 21, 2023, and ended on Thursday, April 20, 2023. Therefore, biological and psychological processes did not impact the research sample since they were of the same age.

C. Experimental Mortality: This refers to the loss of individuals or some individuals from the sample for various reasons, such as illness, death, moving, etc., which can negatively affect the study's results (Ghabari and Khalid, 2010: 185). There was no dropout in either the experimental or control research groups.

D. Time: The experiment commenced in the second semester of the academic year (2022-2023). Therefore, time did not impact the experiment as it was conducted within a single academic semester.

E. Measurement Instrument: The researcher used two measurement tools, the achievement test and the creative thinking test, for both research groups to measure the effect of the independent variable on the dependent variable.

F. Test Differences Among Participants: The researcher controlled for this factor by balancing both the experimental and control groups in terms of chronological age (in months), parental education levels, Raven's Intelligence Test scores, and half-year grades. Additionally, random selection was employed for both the experimental and control research groups (Al-Hamdani et al., 2006: 153-154).

2- Factors Affecting the External Validity of the Experimental Design

A. Pretest Effect: The researcher controlled for the pretest variable by adopting the experimental design with a randomized control group with a posttest (Al-Kailani and Nidal, 2005: 60).

B. The Influence of the Independent Variable with Test Biases: External validity was ensured as there was no pretest available, allowing for the generalization of the current research results to the broader community. Additionally, random selection was employed for both the research groups, and equivalence was maintained in several variables (chronological age, parental education levels, Raven's Intelligence Test scores, and half-year grades).

C. Distribution of Sessions: The researcher followed the school timetable for session distribution. She conducted four sessions per week, with two sessions per week for each research group.

D. Experiment Environment: The experiment was conducted at Al-Huda Girls' School.

E. Duration of the Experiment: The duration of the experiment was the same for both research groups. It began on Tuesday, February 21, 2023, and concluded on Thursday, April 20, 2023.

1-   Formulating Test Paragraphs

The researcher prepared an achievement test consisting of (40) objective-type test items (multiple-choice). Each item was composed of a stem and four options, one of which was correct, and three were incorrect. The researcher then presented the test items to a group of experts and reviewers, totaling (17) specialists in the field. Based on their observations and feedback, the researcher made some adjustments to the wording of certain items. The items covered the six levels of Bloom's taxonomy for behavioral objectives (knowledge, comprehension, application, analysis, synthesis, evaluation) (Appendix).

Psychometric Indicators of the Test

Test Validity

The term "validity" means that the test measures what it claims to measure (Abdulrahman, 2018: 98). To verify the validity of the test, the researcher relied on the following types:

A: Content Validity

Content validity represents the external aspect of validity and deals with the general appearance of the test. It examines whether the test is appropriate for the examinees, considering aspects such as the clarity of instructions, the appropriateness of the order of questions in terms of difficulty, and the allocation of sufficient time for the test. Content validity is calculated based on expert opinions (Suleiman and Abu Al-Am, 2012: 587).

Therefore, the researcher presented the test items and the behavioral objectives she had formulated through the preparation of a test specification table (the test map) to a group of experts and specialists in teaching methods, educational psychology, measurement, and evaluation, totaling (17) experts. Their opinions were sought regarding the suitability and validity of each test item, the appropriateness of the answer key, and the distribution of scores for test items. In light of their valuable feedback, minor modifications were made to the test items based on their opinions and guidance. The total number of test items was (40). The researcher considered a minimum acceptance threshold for items to be (80%) or more. Thus, the test prepared by the researcher is considered content-valid regarding the study's content.

B: Construct Validity

There are certain indicators that can reveal the construct validity. If the test scores align with these indicators, it suggests construct validity. Therefore, the researcher extracted indicators for the construct validity of the current scale. This included calculating the difficulty index for test items, which ranged from (0.272-0.454), and the ease index for test items, which ranged from (0.545-0.727). This indicates that the test items effectively differentiate individuals with varying ability levels. The researcher also calculated the discrimination power of the achievement test items, which ranged from (0.181 - 0.581). Additionally, the researcher calculated reliability using the analysis of variance method, which serves as an indicator of internal consistency. Thus, the scale exhibits construct validity as the calculated reliability coefficient suggests a high level of internal consistency.

2: Reliability

There are different methods to calculate the reliability coefficient, including the test-retest method, parallel forms method, split-half method, and analysis of variance method. In this study, the analysis of variance method was adopted, using the Kuder-Richardson Formula 20, which is based on the ratio of correct and incorrect responses for each item in the test (Ary et al., 2013: 307-308). The reliability coefficient for the test, using this method, was (0.76), which is considered good, consistent with the literature on measurement.

Presentation of Results and Interpretation

1. Result of the First Objective

After applying the posttest to both the experimental and control groups on Thursday, April 20, 2023, and correcting the students' answers and entering the data for both groups (see Appendix), in order to verify the hypothesis stating that "there is no statistically significant difference at the (0.05) level between the average scores of the experimental

group students who study Philosophy and Psychology using the (Outlier Removal) strategy and the average scores of the control group students who study the same subject using the traditional method (Lecture-style) in the achievement test," the researcher calculated the mean and variance for both the experimental and control groups, as shown in Table 4:

Table 4: Statistical Indicators for the Scores of the Research Groups in the Achievement Test

Group	Number of Students	Mean Score	Variance
The Experimental Group	25	26.0400	92٫123
The Control Group	25	21.0300	34٫039

It is evident from Table 4 that the average scores for the experimental group were (26.0400) points, which is higher than the average scores for the control group, which were (21.0300) points out of (40) points. It is also evident that the variance for the experimental group was (92.123) points, which is lower than the variance for the control group, which was (34.039), indicating a statistically significant difference between the average scores of the experimental and control groups in the achievement test at a significance level of (0.05). This was confirmed by conducting a 't-test' for the research groups, and according to statistical conditions, it is evident that the distribution of the 't-test' tends towards normality, as shown in Table 5.

Table 5: The coefficients of skewness for both the experimental and control groups in the achievement test.

Groups	Mean	Median	Standard Deviation	Shewness
Experimental Group	26.0400	24.1204	9.59809	-.982
Control Group	21.0300	19.2415	5.83438	-1.117

From Table 5, it is evident that the frequency distribution of the scores for both research groups approaches normality, as the skewness coefficients for both groups are appropriate values, with one being (-1.047) and the other (-0.038). Skewness values can be either positive or negative and typically range from -3 to +3 on the skewness scale. The closer the skewness is to zero, the closer the frequency distribution is to normality.

By applying the t-test for independent samples to measure the significance of the difference between the means of the two research groups, it was found that the calculated t-value (26.0400) is greater than the critical t-value (1.98) at a significance level of (0.05) with degrees of freedom (48). This indicates that there is a statistically significant difference in favor of the experimental group, which was taught using the strategy. Table 6 illustrates this result.

Table 6: The results of the post-test for the two research groups in the post-dimensional achievement test are as follows

groups	Sample size	mean	Standard deviation	t-value		Significance level at(0.05)
				Calculated	Tabular	
experimental	25	26.0400	9.59809	2.226	1.98	function
Control	25	21.0300	5.83438			

Secondly: Interpreting the results of the first objective:

In light of the research results, it can be concluded that the female students in the experimental group who were taught using the "Extracting the Strange" strategy outperformed the female students in the control group who were taught using the conventional method. The reasons behind this result can be attributed to the following factors:

1. Engagement with the strategy: Students in the experimental group responded positively to the new teaching strategy, which offered organized steps that differed from traditional teaching methods. This positive change in their learning structure enhanced their ability to deal with real-life situations more effectively and clarified their cognitive understanding.

2. Brain stimulation: The strategy "Extracting the Strange" activates the brain's logical and branching thinking processes, building knowledge on a solid foundation. This enhances the students' comprehension and ability to grasp educational situations more effectively.

3. Diverse learning experiences: Teaching with the "Extracting the Strange" strategy introduces new patterns and colors to the learning process, catering to students' needs. This strategy provides sufficient time and purposeful attention to students' questions, allowing them to engage more actively in achieving their goals and ambitions.

Thirdly: Conclusions

Based on the results of the current research, the researcher has drawn the following conclusions:

1. The use of modern strategies derived from constructivist theory in the educational process has a significant and effective impact on students' thinking skills in general, and on creative thinking in particular.

2. The "Extracting the Strange" strategy is suitable for teaching the vocabulary of philosophy and psychology to fifth-grade female students.

3. Implementing the steps of the "Extracting the Strange" strategy has sparked enthusiasm and active participation among the students compared to the conventional teaching method.

4. Teaching using the "Extracting the Strange" strategy helps in organizing the presentation of the subject matter, allowing for a gradual and effective delivery of the course material, particularly in the teaching of philosophy and psychology.

Fourthly: Recommendations

In light of the results of the current research, the researcher recommends the following:

1. Emphasizing the necessity of adopting modern strategies based on constructivist theory, such as the "Extracting the Strange" strategy, in teaching subjects like philosophy,

psychology, and other subjects due to their effective impact on achievement and creative thinking.

2. Providing the necessary educational resources, facilities, and conducive conditions to facilitate the use of the "Extracting the Strange" strategy in the teaching process.

3. The Ministry of Education should prepare a guide that includes modern teaching strategies, including the "Extracting the Strange" strategy, which has proven to be effective in teaching. This guide should also provide sample lesson plans for these strategies.

4. Integrating the vocabulary of teaching methods into the curriculum of scientific, humanities, and elementary education colleges, along with modern teaching strategies, including the "Extracting the Strange" strategy.

Fifthly: Suggestions

In light of the results of the current research and as a continuation of it, the researcher suggests the following:

1. Investigating the impact of the "Extracting the Strange" strategy on the development of deductive thinking in the subjects of philosophy and psychology among fifth-grade literary students.

2. Investigating the impact of the "Extracting the Strange" strategy on scientific thinking among fifth-grade literary students.

3. Investigating the impact of the "Extracting the Strange" strategy on creative thinking and academic achievement among fifth-grade literary students.

4. Investigating the impact of the "Extracting the Strange" strategy on complex thinking among middle school students.

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