

Received: May 2023 Accepted: June 2023
DOI: <https://doi.org/10.58262/ks.v11i02.044>

“The Effectiveness of the Filtering Ideas Strategy in the Achievement of Physics Subject For The Female Students of the Fourth Grade (Scientific Section)”

Shaimaa Burhan Obaid Al-shammari¹, Samah Abdul Karim Abbas Al-fatly²

Abstract:

The research aims to identify the effectiveness of the strategy of filtering ideas in the achievement of physics material among students in the fourth grade (scientific section), and the researcher adopted the experimental approach of partial experimental design for two equal groups, as the researcher randomly selected Division (B) to represent the experimental group that will study physics according to the strategy of filtering ideas, and Division (D) to represent the control group that will study the same subject in the usual way, and the total number of students of the two groups (64) students; By (31) students in the experimental group, and (33) students in the control group; It was statistically rewarded among the students of the two groups In the following variables: (The chronological age is calculated in months, the previous information test, and the intelligence test Otis Lennon), and the researcher identified the subject matter in the subjects from the physics book for the fourth grade scientific, and then the researcher formulated behavioral objectives as the number of (200) behavioral objectives, As for the research tool, the researcher has built the achievement test, which consisted of (40) objective test items of the choice of multiple four alternatives according to (the specifications table), and the validity, the coefficient of discrimination, difficulty and the effectiveness of alternatives and validity were verified; Its validity was verified in a half-partition method; The researcher used statistical means The results showed that the students of the experimental group outperformed the students of the control group, and in light of the results of the research, the researcher developed a number of recommendations and proposals that were mentioned in the fourth chapter.

Keywords: Idea Filtering Strategy , Achievement, Fourth grade (scientific section), Physics

Chapter one

Introduction Into the Research

First, the Research Problem

Physics is one of the pillars of natural sciences and is the basis of many other sciences that are interested in the study, analysis, interpretation and investment of natural phenomena, which have increased their importance for their effective contribution to the technological development witnessed by the world on a large scale in the areas of multiple life. Despite the importance of physics, we find that the actual reality of teaching them is still characterized by inertia, as it depends on casting and indoctrination by the teacher, preservation and memorization by the student, which led to neglect of educational activities and lack of student interaction and participation within the classroom, which led to a significant decrease in academic achievement. (The Buti and Saad ,2018: 81; Lijun & Ting, 2023)

Hence, it was necessary to get to teaching that is effective and has a pattern that does from the role of the student in learning, so that the student is not only a recipient of information, but also a participant

¹ Methods of Teaching physics /General Directorate of Education of Qadisiyah /Diwaniyah / Iraq. Email: edu-sycho.post22.65@qu.edu.iq

² Methods of Teaching physics/ Faculty of Education/ Qadisiyah University / Iraq. samah.abd@qu.edu.iq. Email: Orcid id: 0009-0007-8670-2044

and a seeker of information by various means. Based on the above, the researcher finds that there is an urgent need to research and investigate more effective modern strategies in teaching physics that contribute to raising the achievement of students, such as the strategy of filtering ideas as one of the modern active learning strategies that may contribute to raising the level of achievement of students. Through the above, the researcher identified the problem of research by asking the following question: (Shukla & Bhasin, 2022; Jung, 2023)

" What is the effectiveness of the strategy of filtering ideas in the achievement of physics among fourth-grade female students?"

Second: Significance of Research

The world today is moving very quickly towards scientific development and cognitive progress in various areas of life, as this development was imposed by the progress in the field of research, studies and scientific explorations, so the development had to be kept pace with the development and this is only done through attention to the development of mental and cognitive aspects and mature scientific thinking among learners. (Al-Mousawi ,2015: 15; Al-Dalaeen & Tarawneh, 2022) The world is going through a revolution of information in the branches of science until science and its applications are coupled with contemporary society, as the country that has the levers of science and technology is undoubtedly the developed country (Saada, 2018: 29), which led to many educational and educational institutions to try to make the most of this knowledge, especially in the development of educational processes until the current era is characterized by continuous learning and development. (Al-fatly,2012:3; Toscano et al., 2022)

Therefore, education in all its stages has become a means to achieve the functions and objectives of education and a source to meet the demands of the nation from the active human forces, as a field that reflects the functions and objectives of education from its educational institutions that assume the task of making the human personality. Therefore, the care of education has increased and the promise of raising its level is an important condition for every society that wishes to achieve development and progress (Al-Najm ,2005: 4; Haghshenas & Afrouzi, 2022)

The philosophy of active learning is based on a set of contemporary global and local variables. It is prepared to meet these variables and calls for transferring the focus of attention from the teacher to the learner and making it the focus of the educational process. This philosophy emphasizes that active learning must be linked to the learner's life, reality, needs and interests. This only happens through the learner's interaction with everything that surrounds him in his environment. It starts from the learner's preparations and abilities and occurs in all places where the learner is active. (Ambo Saidi and Hosnia,2016: 24; Alonso-Martín-Romo et al., 2023)

The strategy of filtering ideas is one of the important strategies for active learning, which is based on memorizing the ideas in the mind on a specific topic, as it raises the motivation of students to reach the key to solving them. The idea of the strategy of filtering ideas is based on giving students various ideas about the scientific phenomenon presented in the lesson to be filtered and nominated to reach specific ideas that can be used and invested. This strategy aims to develop the ability of students to sift and filter initial ideas so that they can evaluate these ideas according to certain criteria or tests (Ambo Saidi et al.,2016: 59; Gómez et al., 2022)

Third: The objectives of the research

The current research aims to identify the effectiveness of the strategy of filtering ideas in the achievement

of physics among fourth-grade female students.

Fourth: Research Hypothesis

To verify the objective of the research and answer the questions, the researcher put the following zero hypothesis (there is no statistically significant difference at the level of significance (0.05) between the average scores of the students of the experimental group, who will study according to the strategy of Ideas Filtering, and the average scores of the students of the control group, who will study in the usual way in the achievement of physics) (Herrero, 2023)

Fifth: Research Limits: The current research is determined by

1. **Human Boundaries:** Female students in the fourth grade (scientific section) of high schools and government day schools affiliated to the General Directorate of Education of Qadisiyah .
2. **Time limits:** Second semester of the academic year (2022-2023).
3. **Cognitive boundaries:** Chapter 6 (reflection and refraction of light), VII (mirrors) and VIII (thin lenses). And the ninth (static electricity) from the physics book for the fourth grade scientific edition eleventh edition 2021

Sixth: Definition of Terms

The strategy of Ideas Filtering was defined by

- (Ambo Saidi et al.,2016) as: "Astrategy based on the idea of giving students various ideas about the scientific phenomenon discussed in the lesson through a brainstorming process, and then they filter and filter the ideas they presented according to certain criteria or tests that the teacher had previously developed" (Ambo Saidi et al., 2016: 58)
- Procedural definition of the strategy of filtering ideas as:one of the strategies of active learning followed by the researcher to teach the experimental group (fourth-grade female students) in physics, which is based on the idea of presenting or explaining a specific topic of the physics curriculum through the brainstorming process to take the number of ideas on the subject presented after distributing the students of the experimental group into several groups and naming a representative for each group in order to filter these initial ideas to reach specific ideas and candidates after discussing these ideas and according to the general steps of the strategy .

Achievement defined by

- (Al-Hassan,2013) that: "The extent to which the student is able to absorb the study materials and the extent to which he is able to apply and retrieve them when needed easily and easily" (Al-Hassan ,2013: 66)
- Procedural definition of achievement : The final result of what the students of the two research groups get from the scores in the achievement test prepared by the researcher after teaching the last four chapters of the physics book for fourth-grade female students using the strategy of Ideas Filtering for the experimental group and the usual method with the control group.

Chapter Two

A theoretical framework and previous studies

Active Learning

The people of education and specialization have known active learning many definitions, which may

have varied and differed in their treatment of the concept of active learning between accuracy in description and abbreviation in the phrase or generality and detail in the phrase , but the common thing between all those definitions and different views of active learning is to emphasize the importance of this type of learning for the educational and learning process, especially in this time in which knowledge and information flowed in a way that is difficult to take note of, which makes the only way to deal with it is to find a type of learning such as active learning that gives the foundations and rules in dealing with that knowledge and information and good selection and effective use of information (Al-Malki ,2010: 39) (Candy Haydee Guardia et al., 2023)

Third: Strategy of Ideas Filtering

The idea of the strategy of filtering ideas is based on students giving various ideas about the scientific phenomenon presented in the lesson through a brainstorming process, and then they filter and filter the ideas they submit according to certain criteria or tests that the teacher has set in advance to reach specific ideas that can be used and invested in the skill presented. This strategy encourages students to allow the emergence of all ideas , and depends on the freedom of thought, and is used to generate ideas to address a specific topic or problem. The strategy of filtering ideas aims to develop the student's ability to sift and filter initial ideas so that they can evaluate those ideas according to certain predetermined criteria or tests, (Ambo Saidi ,58:2016)

Steps to implement the strategy of Ideas Filtering

The Strategy of Ideas Filtering Is Based on The Steps of Several Agencies

- The teacher determines the subject of the lesson in which the process of Filtering , refinement or filtering of ideas will take place.
- The teacher explains his lesson in the way he sees fit , and when the time comes to apply the idea , students are asked to sit in groups of 4-6 students , and determine their roles within the group .
- The teacher asks a question and then each group asks their ideas about the question asked ,and writes it at the top of the page or at the top of the funnel if a funnel is drawn.
- The teacher asks each group to nominate, filter or purify the ideas presented either according to a certain standard provided by them or ask them to specify a standard themselves and this is a better and appropriate procedure with adult students, and then put the ideas at the bottom of the page or at the bottom of the funnel.

Fourth: Academic Achievement

Academic achievement is a manifestation of the success of the educational and pedagogical process and the result of its desired results, and at the same time it is considered one of its intended objectives for both the individual and society. For the individual, achievement is one of his basic objectives on which his success depends in his studies, obtaining the certificate, achieving it for himself, and his psychological, social and professional compatibility. As for society, academic achievement is one of the manifestations of improvement in the flow and production rates of the educational system, the low dropout and waste rates in this system, and academic achievement is also one of the most important indicators of the adequacy of the educational system. (Al-Fakhri:7)

Researcher Name Year	Purpose of the Study	Sample size	Approach	RESEARCH TOOLS	Statistical means	Findings
Mohamed's Study (2019) Iraq	Identifying the impact of the strategy of Ideas Filtering in the achievement and development of mental motivation among fifth grade literary students in history	66 female students from the fifth literary grade, (32) female students for the experimental group and (34) female students for the control group	Experimental design with partial adjustment	Judicial testing – Kai-square Achievement the Mental Motivation Scale	T-test Difficulty index Judicial testing – Kai-square - discrimination Effectiveness of the wrong alternatives	The experimental group, according to the strategy of filtering ideas in achievement and development of mental motivation, outperformed the control group, which was studied in the usual way

Chapter Three

Research Methodology and Procedures

This chapter includes a presentation of the research methodology and procedures, as it includes the research methodology followed and the selection of the appropriate experimental design for the research, the identification of the research community and the selection of its sample, as well as the procedures of equivalence between the two research groups (experimental and control) and the consideration and control of extraneous variables. It also includes the preparation of the research tools and their requirements, the application of the experiment and the identification of the necessary statistical means, as follows:

First: Research Methodology

The researcher followed the experimental approach to achieve the two research objectives, because it is one of the most accurate and efficient scientific research methods.

Second: Experimental Design

Since this research includes an independent variable (the strategy of filtering ideas, the usual method), and a dependent variable is (achievement), so the researcher used the experimental design with partial adjustment of two equal groups, one experimental and the other controlled and Figure(1) shows this:

Table (1): Experimental design of research

Group	Valence	The independent variable	The dependent variable	Test
Experimental group	Otis Lennon IQ Test Pre-information test	Idea Filtering Strategy	School Achievement	Achievement Test
Control group	Previous Physics Achievement	Routine method		

Third: The research community and its sample

1. **Research community:** The research community is represented by female students in the fourth grade in the secondary and preparatory day schools for girls in the province of Qadisiyah for the academic year (2022-2023AD), in which the number of scientific fourth grade divisions is not less than two divisions.

For the purpose of determining the research sample from the original community identified by the researcher to conduct her study, the researcher visited the General Directorate of Education in the province of Qadisiyah under the book issued by the university to obtain the list of names of secondary and preparatory schools for girls (Al-Sabahiya), and its location in the province of Qadisiyah.

2. The research sample: The sample is part of the original research community that is selected according to special rules and scientific foundations in order to properly represent the community. The following is a description of the procedures for selecting the sample:

3. School sample: After the researcher identified the schools covered by the research, the researcher chose the school in a random way (lottery), which is the Paradise Preparatory for Girls, which contains four divisions for the fourth grade.

4. Sample of female students: The researcher visited the school under the letter issued by the General Directorate of Education in Qadisiyah Governorate, the preparation and training department. The school administration showed great cooperation with the researcher. The researcher randomly selected Division (B) to represent the experimental group that will study physics according to the strategy of filtering ideas, and Division (D) to represent the control group that will study the same subject in the usual way. The total number of female students in the two groups reached (67) students, before excluding (2) of the failed students from the experimental group, and two female students from the control group. The number of female students in the two groups after exclusion became (62) students, by (31) students in the experimental group, and (33) students in the control group.

Fourth: Equivalence of the two research groups

Table (2): Equivalence of the two research groups

variable	Group	No.	Mean	deviation, perversion, variation	Variance	Degree of freedom	T value		Significance
							Calculated	tabular	
Chronological age	Experimental group	31	166.45	6.22	38.68	62	431	2.000	Not significant
	Control group	33	165.84	4.91	24 January				
last year, Exam	Experimental group	31	62.35	11.27	127.01	62	0.417	2.000	Not significant
	Control group	33	61-21...	10.64	113.20				
Lyon Oates Test	Experimental group	31	36.29	10.95	119.90	62	0.906	2.000	Not significant
	Control group	33	34.12	8.50	72.25				
Prior information	Experimental group	31	12.19	3.41	11.62	62	0.052	2.000	Not significant
	Control group	33	12.15	3	9				

The researcher made an equivalence between the two research groups in some of the variables that may affect the course of the experiment, although the students of the research sample from a social and economic environment are very similar, and they study in one school, and of the same sex. These variables are according to the following table:

Fifth: Control of extraneous (non-experimental) variables

Although the researcher verified the equivalence of the two research groups in some of the variables that are believed to affect the accuracy of the results, she tried to avoid the effect of some extraneous variables in the course of the experiment. Here are some of these variables and how to adjust them: the selection of sample members, the accompanying accidents, the experimental extinction Maturation-

related processes, measuring instrument, experimental procedures).

Sixth: Research Requirements

Before applying the experiment, it is necessary to prepare the basic requirements for the experiment, which are:

1. **Determining the scientific materials:** The researcher determined the scientific subject that will be studied for the students of the two research groups over a period of time. The experiment, and the scientific material included the sixth chapter, the seventh chapter, the eighth chapter, and the ninth chapter of the physics book for the fourth scientific grade, 11th edition, for the year (2021 AD).
2. **Formulation of behavioral objectives** The researcher formulated (200) behavioral objectives and the content of the material to be studied in the experiment, distributed among the six levels in Bloom's classification (knowledge, understanding, application, analysis, synthesis, and evaluation). A group of specialists in the field of education and its teaching methods, and after analyzing the responses of the arbitrators, modified some of the goals in light of the opinions and observations, as the chi-square value (χ^2) was calculated for each of the behavioral purposes and balanced with the tabular value of (3.84) with a degree of freedom (1) and at the level of significance (0.05). The results showed the validity of all behavioral purposes, according to the opinions of experts and specialists.
3. **Preparing teaching plans:** The researcher prepared teaching plans for the subjects of physics that will be studied during the experiment, in light of the content of the textbook and the formulated behavioral goals, and according to the strategy of filtering ideas for the students of the experimental group, and in the usual way for the students of the control group. The researcher presented two model plans. On a group of specialists in the field of education and its teaching methods, and in light of what the arbitrators showed, some necessary modifications were made to it, and it is now ready for implementation.

Seventh: Research Tool

To identify the extent to which the research objectives and hypotheses have been achieved, this required the preparation of a tool to measure the dependent variable, which is:

Achievement test

The researcher followed the following steps to build an achievement test for physics for the fourth grade:

- A) **Determining the objective of the test:** The achievement test aims to measure the achievement of fourth-grade female students (the research sample) in the sixth, seventh, eighth, and ninth chapters of the physics book to be taught for the academic year (2022-2023).
- B) **Determining the number and type of test items :** The researcher identified the test items with (40) items of objective tests of the multiple choice type, and each item contains four alternatives.
- C) **Preparation of the specification table:** The researcher prepared the specification table for the achievement test, and the following points explain the steps followed by the researcher in building the specification table:
 - Finding the relative importance of one chapter relative to the other chapters according to the number of pages of each chapter in relation to the number of pages of the entire article:

$$\frac{\text{Pages count}}{\text{overall pages count of the two chapters}}$$

- Determine the relative importance of the behavioral objective at each level and for each of the two chapters according to the following relationship:

$$\frac{\text{Behavioral objectives per cha}}{\text{total behavioral objectives for the two chapters}}$$

- Determine the number of questions per content using the following equation:
- Number of questions per cell= the relative importance of one class x the relative importance of the behavioral objective of one class x the total number of questions

Table 3 achievement test description

Chapter	Memory	Understanding	Application	Analysis	Composition	Assessment	Total Questions
Sixth	3	2	1	1	1	0	8
Seventh	3	2	1	1	1	0	8
Eighth	4	2	2	1	1	0	10
Ninth	6	3	2	1	1	1	14
Total	16	9	6	4	4	1	40

- D) Test instructions:** The instructions and instructions for how to answer were formulated as (choosing one correct alternative to the item , answering all items , the duration of the answer, writing the triple name, the row and the division in the assigned place).
- E) Test validity:** Virtual validity was extracted and the truthfulness of the content is my agency:
- The **validity of the content:** The test items are representative of the academic content and comprehensive of it by relying on the specifications table and table (3) shows that.
- F) Reconnaissance application of the achievement test: The achievement test was applied in a reconnaissance application and in two stages:**
- The **first exploratory application:** The achievement test was applied in its first exploratory stage to (30) female students in the fourth grade (scientific section), and its purpose was to know the clarity of the instructions and instructions of the test and the extent to which its items are understood and clear to the female students and calculate the time period necessary for it.
 - The **second exploratory application:** The test was applied to a sample of (100) female students in the fourth grade (scientific section). The purpose of the test was to analyse the items of the achievement test statistically, represented by the difficulty of the item , the distinction of the item , and the effectiveness of the wrong alternatives.
- G) Statistical analysis of the passages of the achievement test:** in order to conduct the following statistical analyses:
- **Difficulty coefficient:** When the researcher calculates the difficulty coefficient of each of the test items , he finds that it is limited to between (0.37 – 0.70), and thus it is considered acceptable difficulty coefficients.
 - **Coefficient of discrimination:** The researcher found that it is limited between (0.33-0.63).
 - **The effectiveness of the wrong alternatives:** After calculating the effectiveness of the incorrect alternatives, it was found that they were limited between (-0.3 _ -0.07), which means that the incorrect alternatives are effective.

H) Test validity : The researcher verified the validity of the test in two ways:

- **Hemifractionation method: Validity using the** Pearson correlation coefficient (0.81) was corrected by the Spearman-Brown equation (0.90), and the test is stable.
- **Kauder-Richardson method 20:** The coefficient of validity when calculated with this equation is (0.81).

Chapter Four

Presentation and Interpretation of Results

This chapter includes a presentation of the researcher's findings and their interpretation to know the impact of the strategy of filtering ideas in the achievement of fourth-grade female students in physics, and then know the significance of the differences statistically between the average scores of the two research groups to verify the two research hypotheses.

Presentation of the Results

The **results of the zero hypothesis:**The zero hypothesis states that (there is no statistically significant difference at the level of significance (0.05) between the average scores of the students of the experimental group who will study according to the strategy of filtering ideas and the average scores of the students of the control group who will study in the usual way in the achievement of physics).

To verify the validity of the previous hypothesis, the researcher extracted the arithmetic mean, variance and standard deviation of the students of the two research groups. It appeared that the average scores of the experimental group who studied with the strategy of (filtering ideas) amounted to (28.903), and that the variation amounted to (27.290), and the standard deviation amounted to (5.224), and that the average scores of the control group students who studied in the usual way amounted to (24.454), and that the variation amounted to (39.250), and the standard deviation amounted to (6.265), and when using the T-test for two independent samples, the statistical results showed that there is a statistically significant difference, and that the calculated T-value (3.075) is greater than the table value of (2.000) at a level of significance (0.05) and a degree of freedom (62), and Table (4) shows that:

Table (4): Arithmetic mean, variance, standard deviation and T-value (calculated and tabular) for the scores of the students of the two research groups in the achievement test

Group	No.	mean	deviation, perversion, variation	Variance	Degree of freedom	T value		Significance
						Calculated	tabular	
Experimental group	31	28.903	5.224	27.290	62	3.075	2.000	statistically significant
Control group	33	24.454	6.265	39.250				

It is noted from the previous table that there is a statistically significant difference between the average scores of the students of the two research groups in the achievement test and in favor of the experimental group.

This result indicates the superiority of the students of the experimental group who studied according to the strategy of Ideas Filtering over the students of the control group who studied according to the usual method in the achievement test. Thus, the first zero hypothesis is rejected and the alternative hypothesis is accepted, which states: (There is a statistically significant difference at the level of significance (0.05) between the average scores of the students of the experimental group who will study according to the strategy of Ideas Filtering and the average scores of the students of the control group who will study in

the usual way in the achievement of physics).

Statement of the size of the effect of the independent variable in the first dependent variable (achievement):

Table (5): The size of the effect of the independent variable in the achievement variable

The independent variable	The dependent variable	Effect size value (d)	Amount of effect size
Idea Filtering Strategy	Achievement	0.861	large

Interpretation of the Results

- The strategy of Ideas Filtering presents or provides information that is compatible with the thinking of students' learning, and therefore learning is more effective and easier, which increases the achievement of students.
- Creating an effective educational environment for the practice of the strategy of filtering ideas, and this was done through intensive training of the experimental group through the steps of the strategy through practical examples and exercises to solve problems, as well as working to stimulate or stimulate the student's mind to think in several ways to reach the solution.

Conclusions

In light of the results of the research, the following conclusions were reached:

- Teaching according to the strategy of Ideas Filtering gives equal opportunities to students through their positive participation in the activities of the lesson and takes into account individual differences.
- Teaching fourth grade students according to the strategy of Ideas Filtering had a positive impact in raising the achievement of the experimental group students who studied according to the strategy of Ideas Filtering compared to the achievement of the control group students who studied according to the usual method.

Recommendations

Focusing on the importance of choosing the appropriate teaching strategy for the educational material and the student's scientific and age level, which is commensurate with the characteristics and needs of students' learning before starting any lesson, as it represents the right starting point that provides an educational environment that suits all students and organizes teaching and meets educational needs, which reduces the waste of time and effort by the teacher and student and achieve the desired objectives and raise the grades of student achievement.

- Urging officials in the Ministry of Education to adopt a strategy of Ideas Filtering when rebuilding or designing any curriculum, and to pay attention to the development of educational activities and practices and the provision of various educational techniques that take into account the mental levels of students and not limited to the detailed form of the educational material.

Proposals

Based on the results and conclusions of the current research and as an extension of it, the researcher proposes:

- The effectiveness of the strategy of Ideas Filtering in the achievement of fourth-grade female students in physics and mental fitness.
- The impact of the strategy of Ideas Filtering on the achievement and analytical thinking of the fifth grade primary school students in the subject of science and high-level thinking.

References

1. Al-Buti, Jalal Shanta Jabr and Saad Qadouri, Hudud Al-Khafaji (2018): Your Path to Modern Applied Learning and Research, 1st Edition, Dar Al-Sadiq Cultural Foundation, Iraq.
- Al-Dalaeen, A. S., & Tarawneh, S. (2022). Obstacles Facing Women Working in The Jordanian Construction Industry: Women's Perspective. *INTERNATIONAL JOURNAL OF CONSTRUCTION SUPPLY CHAIN MANAGEMENT*, 12(2), 1-15. <https://ijscsm.com/menu-script/index.php/ijscsm/article/view/140>
- Al-Fakhri, Salem Abdullah Saeed: Academic achievement, Faculty of Arts, Sebha University, Libya
- Al-fatly, Samah Abdel-Karim Abbas (2012) The effect of scientific investigation (collective) and numbered heads on the scientific performance of students of the Physics Department, an unpublished master's thesis, College of Education, University of Al-Qadisiyah .
- Al-Hassan, Essam Idris Kamtour (2013) The effect of using blended learning on academic achievement in the biology course for second-grade students in private secondary schools in Omdurman and their attitudes towards it. *Journal of Educational and Psychological Research*, Issue (36), College of Education, University of Khartoum .
- Al-Moussawi, Najm Abdullah Ghali (2015): Constructivist Theory and Meta-Knowledge Strategies Self-Table Strategy (K.W.L) Model , 1st Edition, Dar Al-Radwan, Publishing and Distribution, Amman, Jordan.
- Alonso-Martín-Romo, L., Oliveros-Mediavilla, M., & Vaquerizo-Domínguez, E. (2023). Perception and opinion of the Ukrainian population regarding information manipulation: A field study on disinformation in the Ukrainian war. *Profesional de la información*, 32(4). <https://doi.org/10.3145/epi.2023.jul.05>
- Ambo Saidi ,Abdullah bin Khamis ,Huda bint Ali Al-Hosaniya (2016): Active Learning Strategies 180 Strategies with Applied Examples ,1st Edition, Dar Al-Masirah Publishing, Distribution and Printing, Amman, Jordan.
- Candy Haydee Guardia, P., Miguel Angel Tupac Yupanqui, E., David Raul Hurtado, T., Yasser Malaga, Y., Oscar Eduardo Pongo, A., Victor Andre Ariza, F., Heidy Margarita Rico, F., Timoteo Cueva, L., Carlo Anthony Balmaceda, F., & José Luis Arias, G. (2023). Research Methodologies in Engineering Sciences: A Critical Analysis. *Operational Research in Engineering Sciences: Theory and Applications*, 6(1), 20-38. <https://oresta.org/menu-script/index.php/oresta/article/view/519/141>
- Gómez, C. L., Osorio, J. L. C., & Andreu, R. C. (2022). Creatividad participativa en la composición de bandas sonoras en Educación Secundaria. *Revista Electrónica de LEEME*, (49), 50-66. <https://doi.org/10.7203/LEEME.49.24080>
- Haghshenas, H., & Afrouzi, G. A. (2022). Existence of Solutions for A Class of Second-Order Boundary Value Problems. *Mathematics for applications*, 11, 21-31. <https://doi.org/10.13164/ma.2022.03>

- Herrero, J. F. (2023). Actividades creativas grupales para la mejora de competencias sociales y emocionales de jóvenes con TEA. *ARTSEDUCA*, (34), 107-122. <https://artseduca.com/wp-content/uploads/2023/06/6474.pdf>
- Iraq An unpublished Master's degree thesis.
- Jung, N. (2023). Individualism in Cormac McCarthy's *The Road: the Highway to Unsustainability*. *Cultura International Journal of Philosophy of Culture and Axiology*, 20(1), 95-106. <https://culturajournal.com/submissions/index.php/ijpca/article/view/216/65>
- Lijun, Z., & Ting, L. (2023). The impact of mental intervention and tailored nursing care on the quality of life of diabetic elderly. *Archives of Clinical Psychiatry*, 50(4), 48-52. <https://archivesspsy.com/menu-script/index.php/ACF/article/view/1263>
- Mohammed, Ali (2019): Identifying the impact of the strategy of filtering ideas in the achievement and development of mental motivation among fifth grade literary students in the subject of history, Faculty of Basic Education, University of Diyala,
- Qatami , Mohammed Ibrahim (2007): *Methods of Teaching Social Studies*, Dar Al-Fikr, Amman, Jordan.
- Rifai, Aqil Mahmoud (2012): *Active Learning (concept and strategies and Evaluation of Learning Outcomes)*, The New university publishings house, Alexandria
- Saada ,Jawdat Ahmed (2018): *General Teaching Methods and their Educational Applications* ,1st Edition,Dar Al-Masirah for Publishing and Distribution Amman , Jordan .
- Saada, Jawdat Ahmed, et al. (2011): *Active Learning between Theory and Practice*, 1st Edition, Dar Al-Shorouk, Amman, Jordan.
- Shukla, A., & Bhasin, K. (2022). Social media usage in higher education: Role in marketing and communication during COVID-19. *Transnational Marketing Journal*, 10(1), 87-101. <https://transnationalmarket.com/menu-script/index.php/transnational/article/view/10/202>
- Toscano, M., Cobo, M. J., & Herrera-Viedma, E. (2022). Software solutions for web information systems in digital humanities: review, analysis and comparative study. *Profesional de la información*, 31(2). <https://doi.org/10.3145/epi.2022.mar.11>