

How to Cite:

Abdelsattar, Z. . S., & Karim, M. A. S. A. (2022). Strategic effect (Scamper) in collection matter sciences and the thinking futuristic female students class second average. *International Journal of Health Sciences*, 6(S7), 3316–3329. <https://doi.org/10.53730/ijhs.v6nS7.12466>

Strategic effect (Scamper) in collection matter sciences and the thinking futuristic female students class second average

Zeena Saffah Abdelsattar

Diyala University/College of Basic Education 07734262264

Email: zeenasaffah@gmail.com

Dr. Majed Abdel Sattar Abdel Karim

Diyala University/College of Basic Education 07735944458

Email: dr.majidabdulsattar60@gmail.com

Abstract---The research aims to identify the impact of the strategy(Scamper)in collection Matter Sciences And the thinking futuristic I have female students Class Second Average ,The research sample included two groups, one of which was the experimental group and the number of its students was (30) students, and the other was the control group and the number of its students was (30) students. Diyala / Baquba, as the researcher adopted the experimental research method as a method for conducting her research, which includes one independent variable (strategy).(Scamper)) and two dependent variables (scholastic achievement, future thinking), as the researcher chose the experimental design to control the research variables. Raven's test of intelligence), and after making the equivalence between the two research groups, the researcher prepared the requirements of the application from plans, goals and tests for the two research groups, and after completing the application of the experiment, the researcher applied her research tools to the two research groups, as the researcher obtained data for the two research groups, as they were processed These data were statistically obtained by means of a test (t-test) for two independent samples and the results are shown; The students of the experimental group outperformed the students of the control group who studied according to the (strategy)(Scamper)) in the achievement test and the future thinking scale .

Keywords--- strategy Scamper Academic achievement, future thinking.

Introduction

First: problem search: that The era we live in needs modern teaching methods Normal conditions will not be suitable to deal with future changes, so it is necessary to prepare learners with high thinking skills even They can deal with the future and its circumstances .Lost Witnessed the scientist today Attention Remarkable in the future gesticulate Associated with it From studies educational and economical and political and cultural and technique , and testify the scientist today number formidable From Challenges and problems it's up that Requires Energizing Capabilities learner imaginative and creative To face Challenges that may be face their communities in the future , From During help them on me thinking futuristic , and this is supports the need to me training on me thinking futuristic , and training on me Solution Problems the future , Where that Challenges that face it the society human big and multiple faceted , And from Expected happening a plus in the years coming .(Abu safea ,2010,12)

And the confirmed Studies local that conducted in Iraq , Such as study(Janabi ,2016), that the choice not the correct to knock teaching one the reasons which may lead to me changing learner to a learner to me And the this it causes in Deterioration their achievement school Lost appeared Strategies teaching modern Depends in mostly on me learning active and more interest educated in the form of Clear with beginning horn atheistic twenty as one From direction educational and psychological contemporary that to her Effect positive big on me process learning inside and out Classroom.(Janabi,2016 , 19)Lost The researcher found that a high percentage of middle school teachers from the selected sample are not familiar with modern teaching strategies and methods, and this indicates the teachers' need to use modern strategies that help learners raise their level of achievement and future thinking. From all of the above, the researcher found that using the strategy (Scamper) may have an impact on the level of academic achievement and future thinking of second-grade intermediate students, so the problem was identified by the following question :

What is the effect of strategy Scamper in the achievement of science and future thinking for second-grade female students, average?

Second: the importance search:

that's strategic at Active learning emphasizes the importance of accumulating knowledge educated By interacting with the environment, to implement active learning it is necessary to diversify its methods and strategies ,and make the learner being more receptive to learning and a variety of strategies is key to learning active .(Atia, 2018:23) Where this strategy Helps develop capabilities And the Psychological and . skills Mentality for you know, like a program De-Bono to teach thinking ,and strategy (Scamper) educational, And the Six Hats Creative Thinking Program , Mind development and education, that this The Strategies to develop thinking educated In general and put the educated In situations and problems that require thinking and making decisions about teach them , strategy (Scamper)It is a guided brainstorm based on mental work using open-ended questions and the generation of new ideas.(Rushton, 2004, 14).

And the Outcomes of the educational process Academic achievement the is Not only the product of the educational process Rather, it is considered a standard in the light of which the level of the academic learners is determined (Al-Salkhi, 2013: 73). As achievement has become one of the concepts that have a great interest in the educational system and educational institutions.(Abu Fouda and Najati, 2012: 55).

Achievement is a true indicator of how much progress the learner has made against previously achieved educational goals and helps the teacher to make an objective judgment of the success of Strategies The teaching that he uses to organize his teaching process. (Hammam, 2014, 141)

can that Complete Stimulate educated thinking From During development skills different learners and the app practical to know the theory Where Represent thinking more shapes the behavior human complex and distinguishes man About Objects live other .(cloth and Fouad ,2016: 23). thinking skills Miscellaneous Especially forward thinking Help the learner to play an active and effective role in the society in which he lives by being able to participate in solving his problems And linking the present with the past to make future decisions, and providing the learner with the opportunity to develop and develop the skills he needs to face an ever-evolving society and enabling the learner to discover his abilities and skills in the future..(Hammam, 2014: 141)

Third :Search Objectives

Aim to search Present to recognize the impact of the strategy Scamper in :

- 1- collecting matter sciences the second grade students have average.
- 2- Forward thinking The second grade students have an average.

Fourthly : hypotheses search:

in Light my goal search formulated researcher the two hypotheses bile the two:-

1-no exist difference with indication Statistic when level indication(0.05)between Average grades group students Experimental will study on me according to strategy (Scamper) and between Average grades the group control will study the way Ordinary in the test Achievement in science prepared for purposes this search .

2-no exist difference with indication Statistic when level indication(0.05)between Average grades female students the group Experimental They will study a subject Sciences on me according to strategy(Scamper and between Average grades the group control will study the way normal in a test thinking futuristic prepared for purposes this search.

Fifthly : border search:

confined search Present on me:-

- 1 -the border spatial : schools medium (governmental daylight) Girls Just Affiliate to me Directorate the public educational in Governorate Diyala / Baquba .
- 2 -the border temporal :the classroom school the first From general school (2021-2022)M .
- 3 -the border Humanity : female students Class Second average.
- 4 -the border Cognitive : unit four and five From book Sciences for class middle second i3, the year (2019)AD, whose teaching is approved in the Republic of Iraq, by the Ministry of Education, middle schools.

Sixth: Determine Terminology :

- 1- strategy ((Scamper) :

It is a set of procedures that helped to think of changes that you can make to a product to come up with a new product, and you can use these changes as direct suggestions or as starting points for development.(Eperel,2008,2).

As for the definition procedural :is a strategy teaching I used it researcher with female students Class Second average to achieve Goals Lesson Biology From During Subtract questions stimulating to think with Activities educational.

- 2- The collection:

" that fate that owns it learner From Of experience and information that Can that employ her in Solution Larger Number From questions that Orientation for him".(Zayer and sky ,2015,149)

As for the definition procedural :is the information that earned it female students Class middle second in material Sciences appreciated in degrees that they got on her in the test achievement prepared Search .

- 3- Forward thinking: defined by:

"that group From Capacity that owns it learner where have to on him that Manage From anticipation Results Present and future and possibility visualization futuristic From During to treat issues that facing society" (Ismael,2014,70)

As for the procedural definition :is the degree the college that Gets on her female students when response on me Scale thinking futuristic prepared For this the purpose.

Chapter Two

Theoretical background and previous studies

Active learning :

The concept of active learning refers to the behavior of students because they do more than simply listen, discover, prepare and apply knowledge and the active learning can be defined as the focus of the educational process, which makes him an active and committed individual who plays a role in the management process according to his desire and ability to select some appropriate activities, and this learning depends on learning by doing, sharing, research and exploration. The role of the teacher is to be a facilitator for the learning process (Suha and Hassan, 18:2016)

Concept strategy(Scamper) :

Mahmoud (2015) defines it as: activities used to help students generate new or alternative ideas and to support creative thinking. Writes abbreviated letters (Scamper) means what came:

1- substitution (Substitute) : (s)

Thinking of replacing part of the problem with something else. Or the person performing the role of another person, or using a certain thing instead of something and Other, or substitute one idea for another, looking at alternatives that can be developed with new ideas, and the possibility of changing things, places, procedures, people, even emotions.

2- aggregation (Combine): (c)

Thinking of combining two or more parts of a problem to produce a different product or process. Or collecting things together to be one thing, that the combination of two terms gives us a new vocabulary that differs in its properties from the previous two terms. This includes a large amount of creative thinking, which ensures the combination of ideas that were previously unrelated.

3- Adaptation (Adapt): (a)

It is the change of ideas to suit the goal to be achieved , Or to change familiar things Or think about matching existing ideas to solve the problem , or modifying an idea, or a specific circumstance by rearranging Changing the shape, adjusting, adjusting, many ideas in certain circumstances after making modifications to them makes them more acceptable.

4 - Development and modification (Modify) : (m)

It is thinking of several ways to increase or enlarge the idea, or parts of it , which increases its perceived value, or refers to the most important elements, or amends ideas, or changes the shape or type by using colors, sounds, movements, smells or other materials. Development gives new ideas, and two skills branch from them:

a-zoom (Magnify): (m)

It is an enlargement in shape, type or size through addition or merging , to make it more powerful, thicker, taller, etc. Zoom gives us new ideas.

b- minimize (Minify) : (m)

Reducing something to be smaller, less frequent, lighter, or slower. Minimization also gives us new ideas.

5 . put to other uses)Put to other uses (: (p)

It is thinking about using the current idea for different purposes, or thinking about things that can be reused in other places. The idea may become great when it is applied differently from the first intended idea, or using the thing to achieve other goals that differ from the original goal.

6. Delete (Eliminate) : (e)

It is to get rid of inappropriate thoughts by thinking about what would happen if parts of a particular idea were removed , meaning removing components during the repetition of the process of cutting ideas, materials or processes, or dispensing with certain elements of something or an idea, that removing or deleting some properties of the thing produces new ideas or situation.

7. Flip or reverse (Reveres): (r)

It is thinking about what you can do if part of the problem, product or process works in reverse or works in a different order, and here the thing is turned or rotated 180 degrees, or made in a contradictory position in order to reorganize the ideas and includes the following skill.

rearrange (Rearrange : (r)

It is a change of order , style, modification, reassembly, distribution, or change of plan or form) Eberle, 2008: 3) (Architecture, 211: 2006) (Hassan, 2014: 189)

Academic achievement:

Academic achievement is one of the most important requirements that affect individuals, families, communities, and nations. To this end, the establishment of the school, the development of the curricula, and if the academic performance is strong, will undoubtedly have a great impact and affect the productivity of the learners, improve the scientific and economic level of the country, and in turn prevent individuals and groups from falling into ideological and behavioral biases, especially since most of the prejudiced people They are low achievers and suffer from an inferiority complex in others, so they engage in immoral behavior and unethical behavior, while academic performance has become an important factor in obtaining a university seat, and the importance of academic performance is to build a strong personality for the learner, let him know what he is talking about,

so the error is less and more Right, and the nation is progressing with the achievement of its children.(Alkhamees, 2018:55).

The concept of future thinking:

Interest in the future goes back to the early beginnings of man's desire to fully understand the mysterious universe and its secrets, as humans observed every aspect of nature around him, its peculiarities, its terrain, earthquakes, the planets that moved it, and the scene of animals and plants, then he noticed himself and found it a space full of questions that continued with The passage of time in appearing, accumulating and reflecting, he turned to himself, collecting and integrating recurring events and phenomena continuing to generate new results. He reckons that his efforts and glory today, and what he built today will collapse tomorrow. Thus, he mobilized his internal forces and lived in a state of anticipation, caution and caution, and then began to search for means and insurance plans for his future. (Hafez, 2015, 9) .

Previous studies

A study on strategy Scamper) as an independent variable:

study (Badri,2014) Where the aim of the research was to identify (The effect of using the idea generation strategy SCAMPER in achievement and creative thinking Fifth grade female students) and the research sample was (45) students, and an achievement test was prepared and the results showed The students of the experimental group outperformed the students of the control group.

A study dealing with forward thinking as a dependent variable:

study (Alwan ,2020)

Where the aim of the research was to identify (The effect of the gradual activities strategy on the achievement of the fifth scientific grade students in physics and their future thinking And the research sample was 68)student, and was prepared future thinking test And the results showed The students of the experimental group outperformed the students of the control group.

Chapter Three: Research Methodology and Procedures

First: Experimental Design:

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

search tool	dependent variable	independent variable	Group
Academic achievement test	Academic achievement	strategy(Scamper)	Experimental
		Method Ordinary	Control

Figure (1): Experimental Design

Second: The research community and its sample:

1. Research community: The current research community represents the morning intermediate schools for boys only affiliated to the Diyala Education Directorate / Baquba

2. Research sample: The research sample is divided into:
 school sample: The researcher chose (Umm Salamah Intermediate School for Girls) in Diyala Governorate / Baquba on purpose to conduct her research.

Female sample after the researcher chooses (Umm Salamah Intermediate School for Girls) To implement the experiment, I found it contains Four divisions, and the researcher randomly chose two divisions (A-B) to be the two research groups, as shown in Table (1).

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

Number female students distance exclusion	Number The excluded students	Number female students Before exclusion	the group	T
30	1	31	Experimental	1
30	1	31	Control	2
60	2	62	the total	

Third: Equality of the two research groups:

The researcher was keen to perform equivalence with the following variables: (Chronological age of the child the pat Calculated in months, previous educational attainment of the child the pat, previous information, intelligence test), and the following is a table showing the above equivalencies:

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

Statistical significance	The two t values		degree of freedom	Variance	standard deviation	SMA	the number	the group	Variable
	tabular	calculated							
not significant statistically	2,000	0.071	58	77.817	8,821	162.90	30	Experimental	Chronological age
				85.857	9.265	162.93	30	Control	
		0.087		275,194	16,589	778,866	30	Experimental	collection previous to the patient
				169.338	13.013	778,533	30	Control	
		0.632		59.552	7.717	19,766	30	Experimental	IQ test
				20,539	4.532	18.733	30	Control	
		1,392			4.28	2.07	5.96	30	Experimental

Fourth: The search tools:

Procedures involved in building each of these two tools:

achievement test The researcher prepared the achievement test according to the following steps:

- A- Determining the purpose of the test aims to measure the amount of information acquired by the students of the second intermediate grade (the research sample) during the duration of the experiment.
- B -Determining the number and type of test items The researcher adopted objective tests of the type (multiple choice) to measure Bloom's cognitive levels, which are (remembering, understanding, application, analysis, synthesis, evaluation).

The validity of the test In order to verify the validity of the achievement test, the researcher adopted two types of validity:

- 1- Virtual validity The researcher distributed the achievement test, accompanied by the behavioral objectives and the specification table, to a group of arbitrators, and in light of their opinions, the percentage ranged between (85% - 100%), and therefore the test items were kept (40) items.
- 2- Content authenticity :The researcher prepared a table of specifications, and its validity was confirmed through the table of specifications that were presented with the achievement test to a group of arbitrators. Therefore, the paragraphs of the achievement test are representative and comprehensive of the academic content.

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

The first survey application : After verifying the validity of the test, the achievement test was applied in its first exploratory stage on Wednesday (12/1/2022) on a group of middle school students in (intermediate).Hopes for girls The number of female students was (30), and its purpose was to know the clarity of the instructions, paragraphs and instructions of the test.

Application second survey : It numbered (100) students of the second year middle school students in Medium boom for girls) On Sunday (16/1/2022), the students were notified a week before the exam was to take place researcher The coefficient of difficulty, coefficient of ease, discrimination and the effectiveness of wrong alternatives for the achievement test by using the two extreme groups method (27%) for the upper group, which amounted to (27) students, and (27%) for the lower group, which amounted to (27) students from the statistical analysis sample, and then analyzed The scores for both the statistically superior and inferior groups for the purpose of extracting the psychometric characteristics of the achievement test.

Statistical analysis of the achievement test items:

First: the difficulty coefficient of the test items: Its value ranges between (0,35 - 0,70) Thus, the paragraphs of the achievement test are good and appropriate in terms of difficulty, ease and acceptable

Second: Discrimination coefficient :is found researcher It ranges between (0.22 - 0.55).

Third: the effectiveness of the wrong alternatives: stuck between(-0.03 -0,22).

Fourth: the stability of the test: verification researcher From the stability of the test by way Figs:

- 1- Half-segmentation method : The researcher adopted the scores of the exploratory sample in the achievement test that was applied at (Taleb Al-Zaidi High School for Boys) on Sunday (16/1/2022). The stability was reached using the Pearson correlation coefficient (0.858), then corrected by the Spearman-Brown equation, and it reached (0.923).

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

Scale thinking future:

represents the thinking My future The second dependent variable of the research, after knowing the researcher on the number of metrics related to thinking For my future, therefore, the researcher prepared a future thinking scale, according to the following steps:

A- Determine the purpose of the scale

B_ Determining the skills of a future thinking scale

c_ Drafting the paragraphs of the scale

D_ Define scale alternatives

e_ Forward Thinking Scale Instructions

f- the-Scale correction instructions

g-The validity of the thinking test future

Statistical means:

Use researcher in search program (Microsoft Excel-2010) and the (spss) system using statistical methods.

Chapter Four: Presentation and Interpretation of Results

First, show the results:

null hypothesis results: rise researcher Preparing an achievement test for science And a measure of future thinking And it was applied to the two research groups, and after applying the test researcher By correcting the papers of the two groups and recording the scores of the students of the two groups, the arithmetic mean of the scores of the students of the two research groups and the standard deviation was calculated, and then the t-test was applied(t-test) for two independent samples as shown in Table (3):

Countries (3): The scores of the students of the two research groups in the achievement test for science

Statistical significance	The two t values		degree of freedom	variance	standard deviation	SMA	the number	the group	Variable
	tabular	Calculated							
not significant statistically	2,000	0.071	58	77.817	8,821	162.90	30	Experimental	Chronological age
				85.857	9.265	162.93	30	Control	
		0.087		275,194	16,589	778,866	30	Experimental	collection previous to the pat
				169.338	13.013	778,533	30	Control	
		0.632		59.552	7.717	19,766	30	Experimental	IQ test
				20,539	4.532	18.733	30	Control	
		1,392		4.28	2.07	5.96	30	Experimental	Previous information test
				4.75	2.18	5.20	30	Control	

Through the results, it is clear that the students of the experimental group outperform the students of the control group in the achievement test for science and a measure of future thinking.

Second, the interpretation of the results :

Teaching is a strategy(Scamper)It provided a comfortable psychological atmosphere for the students, which led to the freedom to express their ideas and to retrieve the stock of knowledge and link it to the new knowledge, which enhanced the students' self-confidence.

Third: Conclusions :Teaching second year middle school students science subject according to a strategy Scamper)It had a positive effect in raising their academic achievement and their future thinking.

Fourth: Recommendations: The necessity of establishing developmental training courses and teaching programs for a teacher Science subject in the intermediate stage for the purpose of providing them with modern teaching strategies such as (strategy)Scamper)) to benefit from it in raising the level of students, since the

usual method has become ineffective at the present time .

Fifth: Suggestions :Conducting a comparative study between the strategy(Scamper) And the Strategies Modern teaching pop-up active learning strategies to find out the difference between them in a variable different rates and age stages .

References

- Abu Fouda, Basil Khamis and Najati Ahmed bin Younis, (2012) , achievement tests , 1st floor, Dar Al Masirah for Publishing, Distribution and Printing, Amman, Jordan .
- Abu Safiya, Lina, (2010), the effectiveness of a training program based on solving future problems in developing thinking among a sample of tenth grade female students in Zarqa, an unpublished PhD thesis, College of Graduate Studies, University of Jordan.
- Al-Badri, Hind, (2014), (The effect of using the idea generation strategy SCAMPER) in achievement and creative thinking Fifth grade students, master's thesis, Babylon, Iraq.
- Al-Janabi, Sarab Khudair Abed, (2016), the effectiveness of using a curve STSE On the achievement of fourth-grade students in science in biology and their attitudes towards the environment, an unpublished master's thesis, College of Basic Education, University of Babylon, Iraq.
- Al-Qamsh, Mustafa Nouri and Fouad Obaid Al-Khawaldeh, (2016), Teaching Thinking, Edition 1, Dar Al-Thaqafa for Publishing and Distribution, Jordan.
- Alwan, Baida Abdul-Kadhim, 2020, Knowing the development of physics curricula at the secondary stage in the light of contemporary variables and future thinking, Master's thesis, Babylon, Iraq.
- Attia, Mohsen Ali, (2018), Active Learning, Modern Strategies and Techniques in Teaching, 1st Edition, Dar Al-Shorouk for Publishing and Distribution, Amman, Jordan.
- Eberl.B (2008): Scamper Creative games and activities (Let your imagination run wild) Waca TX: Prufrack Press
- Hafez, Imad Hussein (2015), future thinking (concept, skills, strategies), Dar Al Uloom for Publishing and Distribution, Amman, Jordan.
- Hammam, Abdel Hafeez Mohamed, (2014), Curricula between authenticity and contemporary and future prospects, 1st Edition, World of Books for Publishing and Distribution, Cairo, Egypt.
- Hassan, Hana Rajab, (2014), Thinking, its teaching programs and methods of measuring it, Dar Al-Kutub Al-Ilmia for Printing and Publishing, 1st Edition, Amman .
- Ismail, Samah Muhammad, (2014), a program based on the dimensions of the dialogue of civilizations to develop future thinking and awareness of some contemporary issues among student teachers in the Department of Philosophy in the College of Education, Journal of the Educational Society for Social Studies.
- Mimar, Salah Saleh, (2006), The Science of Thinking, 1st Edition, Debono for printing, publishing and distribution.

- Rushton« C (2006): The Invention Convention in the class room the basis if disciplined creative thinking for every grade level Worthing oton OH: just thinking publishers-
- Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). Get vaccinated when it is your turn and follow the local guidelines. *International Journal of Health Sciences*, 5(3), x-xv. <https://doi.org/10.53730/ijhs.v5n3.2938>
- Suha, Ahmed and Hassan Khalil Al-Masalha, (2016), Active Learning Strategies, Activities and Practical Applications, Debono Center for Teaching Thinking, Amman, Jordan.
- Alkhamees , Munira, (2018), Developing thinking and creative achievement in light of TRIZ theory, 1st floor, Debono Center, United Arab Emirates .
- Zayer, Saad Ali and Sama Turki, (2015), Modern trends in teaching Arabic, 1st Edition, Methodological House for Publishing and Distribution, Amman, Jordan.