

## STRATEGIC IMPACT (SCAMPER) IN THE ACHIEVEMENT OF SCIENCE FOR SECOND-GRADE INTERMEDIATE STUDENTS

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### Abstract

This study aimed to find out the effect of the strategy Scamper in the achievement of science for second-grade intermediate students, one of the intermediate schools (Umm Salamah Intermediate School for Girls) was chosen in Diyala Governorate, and the students were randomly divided to represent one of the two experimental groups and the other to represent the control group, and the research sample consisted of (60) female students. The experimental group included (30) and the control group (30). The course included four chapters (seventh, eighth, ninth, tenth), the behavioral objectives of the four chapters were formulated and amounted to (198) objectives for Bloom's classification of the cognitive domain (remember, understanding, application, analysis, installation, evaluation), and preparing teaching plans for the two groups (experimental and control), and it was (18) a teaching plan for the two groups. The test tool consists of an achievement test prepared by the researcher. It consists of (40) paragraphs of the type of multiple choice that contains four alternatives. The results were processed using the statistical package (SPSS). The results showed that the experimental group outperformed the control group in achievement.

**Keywords:** strategy Scamper, collection.

### First: - Search Problem:

The era we live in needs modern teaching methods that normal conditions will not be suitable for dealing with future changes, so it is necessary to prepare learners with high thinking skills so that they can deal with the future and its circumstances. The world today has witnessed a remarkable interest in the future and its related educational,

economic, political, cultural and technical studies, and the world today is witnessing a huge number of challenges and problems, which require activating the learner's imaginative and creative abilities to meet the challenges that may face their societies in the future, by helping them to think about the future, This supports the need for training in forward thinking, and training in solving future problems, as the challenges facing human society are large and multifaceted, and an increase is expected in the coming years. (Abu Safiya, 2010, 12)

Therefore, the research problem arises in that the students of the second average have weak achievement in science, and for this the researcher formulated the problem with a question:

**What strategic impact (Scamper) in the achievement of science for second-grade intermediate students?**

**Second: The importance of research:**

1- This research came in response to modern trends in education that focus on keeping pace with the most important requirements of society in our present and future times, by focusing on the use of modern strategies in teaching.

2- implementing a strategy(Scamper ) that may contribute to raising the level of academic achievement of learners in science.

3- The importance of the intermediate stage in general and the second grade average in particular, as it contributes to building and developing the learner's personality in the cognitive, skill and emotional fields.

**Third: The aim of the research:**

The current research aims to identify the impact of the strategy (Scamper) in the achievement of science for second-grade intermediate students.

**Fourth: The two research hypotheses:**

In light of the research objective, the researcher formulated a hypothesis zero following :-

There is no statistically significant difference at the significance level (0.05) between the average scores of the experimental group students who will study according to the strategy (Scamper) and between the average scores of the control group who will study in the usual way in the achievement test for science subject prepared for the purposes of this research.

**Fifth: Limitations of Research:**

The current search is limited to:

1 - Spatial boundaries: Intermediate (governmental) schools for girls only, affiliated to the General Directorate of Education in Diyala Governorate / Baquba.

2 - Time limits: the first semester of the academic year (2021-2022) AD.

3- Human limits: second-grade middle school students.

4- Cognitive limits: the fourth and fifth units of the science book for the second intermediate grade, 3rd floor, year (2019) AD, and whose teaching is approved in the Republic of Iraq, the Ministry of Education, middle schools.

### **Sixth: Defining Terms:**

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 procedural definition: It is a teaching strategy that the researcher used with the students of the second intermediate grade to achieve the objectives of the biology lesson by asking thinking stimulating questions with the educational activities.

2-Achievement: “It is the amount that the learner possesses of experiences and information that he can employ in solving the largest number of questions that are directed to him” (Zayer and Samaa, 2015, p. 149).

As for the procedural definition: it is the information acquired by the students of the second intermediate grade in science, estimated by the grades they obtained in the achievement test prepared for research.

## **Chapter Two**

### **Theoretical background:**

#### **cooperative learning:**

(Al-Sir et al., 2018) believe that cooperative learning:It is a set of movements and behaviorsinside the classroomthat the teacher plans and supervisesimplement itaIt is based on dividing students into heterogeneous groups, the number of whose members varies between 4-6 students, who learn in a cooperative and negotiated way to achieve a common goal of the lesson, where the learner learns from his colleagues in the group and teaches them.(the secret and others,2018: 229)

#### **Concept strategy Scamper :**

Mahmoud (2015) defines it as: activities used to help female students generate new or alternative ideas and 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:

**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.

**minimize (Minify ): ( m )**

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

**5 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 :**

**a. His concept:**

Experts in the fields of education and psychology are concerned with academic achievement because of its importance in the learner’s life and the gradual stages of his life from childhood to after life, as it is the highest level of science or knowledge through which one can move from one stage to another and continue to acquire knowledge. They are the grades he obtained in the exams, or in particular the school exams in the subjects he had previously studied with the teachers, so the school or academic performance is the type of grades that relate to the study or study of science and the various subjects that the learner obtains. Or according to the prior planning and design of the management of the educational institution. (Al-Jalali, 2011: 12).

**Previous Studies:**

It consists in informing the researcher of previous studies and literature study (Hind Abdul Razzaq Al-Badri) (2014) Where the aim of the research is 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 Excellence The students of the experimental group over the students of the control group.

**Chapter Three**

**Research Methodology**

**First: Experimental Design:**

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

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

Schedule(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	NumberThe 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 childthe 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	Experim ental	Chronologic al age
				85.857	9.265	162.93	30	Control	
		0.087		275,194	16,589	778,866	30	Experim ental	collection previous to the pat
				169,338	13.013	778,533	30	Control	
		0.632		59,552	7.717	19,766	30	Experim ental	IQ test
				20,539	4.532	18.733	30	Control	
		1,392		4.28	2.07	5.96	30	Experim ental	Previous information test
				4.75	2.18	5.20	30	Control	

**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 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) studentseof the second year middle school students inMedium boom for girls) On Sunday (16/1/2022), the students were notified a week before the exam was to take placeTresearchereThe 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 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 of Figs:

1- Half-segmentation method :The researcher relied on the scores of the exploratory sample in the achievement test that was applied in (high school).prosperity for girls) 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).

#### Chapter Four: Presentation and Interpretation of Results

First, show the results:

null hypothesis results : rise researcher Preparing an achievement test for science, and it was applied to the two research groups 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

Significance level 0.05	T value		degree of freedom	variance	standard deviation	SMA	The number of sample members	the group
	Scheduling	calculated						
Statistically significant in favor of the experimental group	2,000	3,172	758	24,50	4,95	26,03	30	Experimental
				18,40	4,29	22,23	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 .

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 strategyScamper)It had a positive effect in raising their academic achievement.

Fourth: Recommendations: The necessity of establishing developmental training courses and teaching programs for science teachers at the intermediate stage in order to provide 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



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Fifth: Suggestions : Conducting a comparative study between the strategy (Scamper) And the Strategies Modern teaching pop-up active learning strategies To know the difference between them in a variable IDifferent rates and age stages

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