

# The effect of the “Osborne-Barnes” model of Creative solving problems in improving the grammar skills of third grade intermediate students in Najran region

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## ABSTRACT

The study aimed to uncover the effect of the Osborne-Barnes model: Creative problem solving in improving grammar skills of third-grade intermediate students. A quasi-experimental approach was used to design two equivalent groups. The sample of the study consisted of (54) female students who were selected from the third intermediate grade in the "eleventh intermediate school" in the Najran region in the Kingdom of Saudi Arabia. They were distributed into two control groups consisting of (27) male and experimental students, consisting of (27) female students. The Grammar Skills Test was used as a data collection tool. The results showed that there were statistically significant differences between the averages of the female students on the post-measurement grammar skills test in favor of the experimental group. This indicates the existence of the effect of the Osborne-Barnes model, a creative solution to problems in improving the grammar skills of middle-grade third-grade students. The study recommended the necessity of conducting training courses for teachers in order to familiarize them with the Osborne-Barnes model, and the mechanism of its application in the classroom.

**KEYWORDS:** Osborne-Barnes model, creative problem solving, grammar, Najran region

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## Introduction:

Grammar is the backbone and foundation of the Arabic language. The Arabic language is an Arabized language, and the symbols placed on the end of words express what the individual wants to communicate, whether it is writing, reading and speaking. Grammar is a branch of the Arabic language, and is even considered one of the most important.

The science of grammar is one of the sciences of the Arabic language and it is concerned with studying the origins of the formation of sentences and the rules of syntax. Learning grammar is an integral part of familiarity with the Arabic language, because of its great importance in the language, as it aims to determine the

methods by which sentences were formed, the positions of words and the function of each (Ramadan, 2020). Grammar in the Arabic language constitutes the basic basis from which the individual proceeds to the various other arts in the Arabic language, so that he can read correctly, express expressive writing that is free of errors, and master speech by controlling syntactic movements, and when he mastered these rules, he becomes able to employ them in different aspects of life. And he has a sense of linguistics so that he can understand and express language in an understandable way (Ibrahim, 2017). The grammatical rules are the provisions of words in the Arabic language in terms of construction, their syntactic status, changes that occur to them and their relationship to other words, and what should be at the end of the word

in terms of raising, accusative, asserting or accusative (Saadi, 2018).

Teaching grammar will enable the student to understand the rules related to the elements of the Arabic language and to fine-tune them to create correct and appropriate linguistic contexts. The student becomes able to relate the parts of speech and perceive the difference between phrases, structures, sentences and words, in addition to his mastery of reading and writing in the correct manner, so that he can express his thoughts and thoughts properly. This would make the student able to use it in the places of use, so he would employ it in his daily life and thus he would feel that the rules are of direct benefit and relate to understanding reality, as the grammatical rules help the student to read the partially formed texts smoothly, fluently and correctly. It helps the student to respect the rules of morphology and grammar in oral expression and written expression, hence the importance of grammar and the need for it in teaching reading, writing and expression to school students (Naqody, 2014).

The aim of teaching grammar rules is to straighten the tongue and correct concepts and meanings, and that is by training the student to use and use words, phrases and sentences correctly, and to formulate structures without making grammatical errors, so that the student is able to comprehend the meanings and be able to read, write and speak fluently (Youssef, 2019). Therefore, improving students' grammar skills is one of the most important goals of teaching the Arabic language subject, as understanding grammar helps transfer ideas to others without ambiguity or ambiguity, and to form sentences and phrases free from errors and characterized by correct linguistic controls, and understanding grammatical rules contribute to the formation of structures Linguistic, discovering errors in it, correcting grammatical assets, and adjusting words and phrases correctly and precisely (Al-Hudaibi, 2017).

The importance of understanding grammatical rules lies in enabling the student to produce and form sentences and phrases, form them correctly, and understand the relationships between sentences and conclude their connotations. It also enhances the student's ability to properly set and express words in order to lead to the listener and recipient understanding the required meaning efficiently and competently. Also, through understanding grammatical rules, the student can develop the skills of observation, balance, induction, deduction, analysis and measurement, in a way that stimulates the mind and thinking so that it has a strong

and distinct cognitive structure (Abdullah, Omar, Sulaiman & Muhamad, 2017).

Schools are the first and ideal platform for improving students' performance and developing their cognitive and physical skills, as the school contributes to being affected by performance, raising school achievement, and developing the educational process among students. The Arabic language study is one of the most important school subjects that is concerned with providing students with basic writing, listening, reading and speaking skills in daily life, and pushing them to communicate ideas in a correct and accurate manner without experiencing any grammatical or linguistic errors (Beja, 2010). Therefore, it is important to use modern teaching methods, models and strategies that are more appropriate to teach students various Arabic language skills, including grammar skills, including the Osborne-Barnes model, creative problem solving.

The Osborne-Barnes model is one of the educational strategies that focused on including creativity in solving educational problems. And in order to achieve the goal of the model, it is necessary to find the sequence in the application of the stages. It also explains how emotions and effort influence thinking, guidelines for brainstorming, and ways to stimulate an idea in the creative problem-solving process (Reali, 2008).

This common model was modified over time by Sidney Barnes (1981), Donald Trefinger and Scott Essaxon (2005), and acquired additional steps, so that it became six steps to compose the current model, namely building opportunities or discovering chaos, exploring data or investigating facts, framing problems or discovering them, And generating ideas and finding others to solve the problem, and developing solutions and finally, accepting the solution, implementing the plan by identifying the responsible persons, the schedule of actions, and the resources available (Doak, Jambura, Knittel & Rule, 2013).

The Osborne-Barnes model is a program based on the use of a set of scientific activities and procedures that enable the learner to understand, transfer experience and knowledge, and benefit from them in the formation of new experiences and gain the ability to discover problems and reach appropriate solutions and ideas (Dawood, 2018), and includes a number of procedures The series that aims to obtain a large number of possible alternatives to solve the problem, and then evaluate these alternatives, and find the optimal solution (Shahbaz,

2017), and is based on the use of creative thinking skills according to logical sequential steps with a clear and specific methodology, with the aim of facing problems and finding better solutions, This is done by understanding and identifying the problem, then generating unconventional ideas and finally finding new and appropriate solutions (Al-Zoubi, 2015).

The importance of the Osborne-Barnes model is evident in producing and generating the largest possible number of ideas in order to reach logical solutions as possible, and thus it may affect students' problem-solving skills and push them to discover the grammatical problems they face and work on solving them in an autonomous manner. This model also contributes to improving the creative abilities of students, which is reflected in the provision of an attractive and exciting learning environment (Al-Smadi and Abu Lum, 2011). In addition to the role of this model in stimulating students' motivation towards self-learning and linking their previous experiences with their new data and knowledge, in addition to its role in providing students with various mental skills, such as: planning, observation, hypothesis and conclusion (Hussein & Nazal, 2018). In this regard, the results of previous research and studies have shown the effect of the Osborne-Barnes model: Creative solution to problems in developing different skills of learners, including the study of Al-Samadi (2010), which showed the presence of the model in improving students' abilities to solve engineering problems. Also the study of Shahenaz (2017) showed that it has a significant impact on the acquisition of concepts among students.

From the above, the importance of the Osborne-Barnes model for creative problem solving is highlighted as an instructional strategy based on evidence and empirical evidence that has been proven to be effective in the teaching and learning process, as well as the importance of grammar skills from being necessary to participate in many linguistic, cultural and social contexts and to convey ideas and information in a sound manner. Hence the need to conduct this study, which sought to study the effect of the (Osborne-Barnes) model, the creative solution of problems in improving the grammar skills of third-grade intermediate students in the Najran region.

#### **The Problem of the study:**

Grammar rules are characterized by being one of the difficult topics that make students averse to studying and learning, hence the teacher's role in his ability to

simplify it for students. The teacher must use modern educational methods and means away from traditional patterns, and employ strategies that make the student the focus of the teaching process, and be a self-taught learner able to link his previous experiences with new knowledge and experiences. In this regard, Ali and Ahmed (2018) indicated that middle school students in the Kingdom of Saudi Arabia still suffer from a weakness in understanding and analyzing grammatical rules and expressing them as a result of the resort of the majority of teachers, including Arabic language teachers to the use of traditional teaching methods and methods in explaining the grammatical material that is based on Indoctrination and memorization, devoid of creativity and suspense, and the involvement of students in analyzing, interpreting and deducing the grammatical base. This resulted in major problems in understanding, distinguishing and applying their grammar rules. Therefore, the researcher sought to find a modern educational method that makes learning grammar skills more interesting and exciting, and more influential on students, and contributes to developing the skills of understanding, distinguishing and applying grammar rules for them. By reviewing previous research and studies conducted in this field, it was found that the Osborne-Barnes model for creative problem solving is one of the teaching models that are effective in teaching various skills to students, such as the study (Hung, 2003; Houtz, 2002; Kobe, 2002; Chang & Cheng, 2000; Al-Samadi, 2010; Shahbaz, 2017; Daoud, 2018). Hence, the study problem crystallized, which appears to reveal the effect of the Osborne-Barnes model: the creative solution to problems in improving the grammar skills of third-grade intermediate students in the Najran region. Specifically, this study attempted to answer the following question:

Q1: Are there statistically significant differences at the level of significance ( $\alpha = 0.05$ ) between the mean scores of the experimental group students and the average scores of the control group students on the grammar skills test due to the teaching method (Osborne - Barnes model: creative problem solving, the usual method)?

#### **The importance of the study:**

This study is an important scientific addition in a new field and a new study community, and this study can also benefit the Arab library in general and the Saudi Library in particular by adding new knowledge in the field of the Osborne-Barnes model: creative problem solving, and encouraging learners to employ it in

improving grammar skills. The results of this study can be used in preparing training programs to develop teachers' skills in using the Osborne-Barnes model: Creative solution to problems in the classroom. It may also be useful in guiding those in charge of the educational process on the need to pay attention to the employment of class activities based on the Osborne-Barnes model: the creative solution to problems in teaching grammar rules. It is hoped that it will contribute

### **Terms of the study:**

1. Osborne-Barnes model: The creative solution to problems: a teaching model based on generating the largest possible number of alternatives or ideas that are fluent through the use of divergent thinking tools, and then searching for rare and varied ideas among the many ideas by using the foundations of convergent thinking (Al-Dulaimi, Al-Hiti and Al-Jouani, 2012). And procedural in this study is: a set of objectives, methods, means, activities, procedures, and evaluation, used to teach on the basis of Osborne-Barnes: the creative solution to problems in the Arabic language subject with the aim of developing the skills of understanding, discrimination and application in the grammatical rules of third-grade intermediate students in Najran (The study sample).

2. Grammatical rules: a set of rules that are concerned with the particles of syntax and that organize the general framework for types of inference such as abundance and few, and are concerned with the end of speech and the clarification of the Arabic provisions for them (grammar, 2015). It is measured through the responses of the study sample (third grade intermediate students) to the grammar skills test prepared by the researcher for this purpose.

3. The third intermediate grade: The highest grade in the intermediate education stage, which falls between the primary and secondary stages.

### **Approach of the study:**

This study adopted the quasi-experimental approach "Designs Quasi Experimental" using a pre-post-design for two equal groups, as this design provides a pre-test with randomness in selection and the control group to control all threats to internal validity, as it is the most appropriate approach to the nature of the study, its sample and its objectives.

### **Sample of the study:**

to enlightening the authors of Arabic language books of the importance of including the Osborne-Barnes model as an educational approach in the curriculum and the teacher's guide. In addition to making use of the results and recommendations that came out of this study to open the way for other research and studies in the field of teaching grammar rules in the Arabic language in the different grades and stages of study.

The study individuals consisted of (54) female students from the third intermediate grade, who were selected from the eleventh intermediate school in Najran region in the Kingdom of Saudi Arabia, and they were distributed randomly into two groups, namely: the control group and it consisted of (27) students who were not subjected to treatment, and the experimental group consisted of (27) A female student who underwent treatment (training using the Osborne-Barnes model: Creative Problem Solving). Parity was checked between the two groups.

### **Experimental treatment material:**

Creative problem solving is a complex process that includes the use of both critical thinking skills and creative thinking, as it requires convergent thinking capabilities and divergent thinking capabilities together according to specific logical steps in order to reach a decision of the best solutions to a problem. After reviewing the theoretical literature and previous studies on the subject of the "Osborne-Barnes" model of creative problem solving, a strategy was designed according to the "Osborne-Barnes" model of creative problem solving in order to develop students' grammar skills and express their understanding of the lessons themselves in a better way. The lessons of the "Osborne-Barnes" model were prepared for the creative solution of problems by choosing a unit of study from the Arabic language textbook for the third intermediate grade in the Kingdom of Saudi Arabia, to be used in the teaching sessions. The number of lessons was (10) lessons, each lesson lasted (45) minutes.

The validity of the content of the lessons of the "Osborne-Barnes" model, the creative solution to the problems, was verified by presenting them to ten referees with expertise and competence in teaching Arabic and in Arabic language curricula and methods of teaching it at Najran University. The clarity of the meaning, the ease

of implementation, and any observations or modifications they deem appropriate, and based on the consensus of more than (80%) of the group of arbitrators, the lessons of the thinking method were adopted in their final form. A teacher specializing in Arabic was trained to apply the "Osborne-Barnes" model for creative problem solving, and with direct follow-up and supervision from the researcher. Then, Arabic language lessons were implemented using the "Osborne-Barnes" creative problem solving model with the aim of developing grammatical skills, as follows: Arranging the classroom so that the students sit in groups of (4-5) students in each group, then the objectives of each lesson are explained and the roles of each group are presented, then the teaching process begins according to the principles of the "Osborne-Barnes" model, creative solution to problems, then the end of the discussion and evaluation session.

In this study, grammar rules were taught using the Osborne-Barnes model known as the Creative Problem Solving (CPS) model, which consists of three components (understanding the problem, generating ideas, and planning for implementation) and in six stages distributed into the three components as well. Follows:

The first component: Understanding the problem: It includes three stages: the fuzzy problem, generating data, and identifying the problem. This component is concerned with understanding the problem by collecting the largest amount of information and data on the unspecified problem (the fuzzy) to reach a clear definition of the problem.

The second component: Generating ideas: It includes only one stage: creating ideas. In this component, attention is paid to trying to find as many ideas as possible that could be a solution to the problem.

The third component: Implementation Planning: This component includes two phases: finding solutions,

and finding acceptance and satisfaction with solutions. This component is concerned with evaluating the most likely ideas to solve the problem faced by the individual.

**Study instrument:** Achievement Test

For the purposes of measuring the grammatical skills of the third-year intermediate students in the Arabic language subject, the researcher prepared an achievement test based on the tests used in previous studies. 1-10), the skill of discrimination (11-20), the skill of application (21-30), and the test questions of the multiple choice type were used with four alternatives, where the respondent (student) chooses only one answer indicating the correct answer, and the test takes a period of time (45) minutes to read instructions and solve questions.

**Test validity:**

1: Referees' validity: The test was built in its initial form to measure grammar skills, and it was presented to a group of arbitrators and specialists to judge the validity of the test and the appropriateness of the test items for what they were designed to measure, and also to judge the formulation of the test items in accordance with the rules and conditions for drafting the substantive test statements, and clarity of wording The linguistic nature of the test items, as well as the clarity of the test instructions, and the referees' notes were taken into account in terms of deletion, modification, or addition.

2: Validity of internal consistency: The test was applied to an exploratory sample from outside the study sample consisting of (26) female students of the third intermediate grade in Najran region, and Pearson correlation coefficient was calculated between the score on the question and the total score of the test, and Table (1) shows that:

Table (1): Pearson correlation coefficient between the score for the question and the total score for the test

Question	Correlation of the statement with the overall score	Sig	Question	Correlation of the statement with the overall score	Sig
1	.620**	.000	16	.461**	.009
2	.475**	.007	17	.574**	.001
3	.718**	.000	18	.713**	.000
4	.718**	.000	19	.489**	.006
5	.713**	.000	20	.343*	.043
6	.545**	.002	21	.489**	.006

7	.718**	.000	22	.510**	.004
8	.408*	.019	23	.440*	.012
9	.489**	.006	24	.534**	.003
10	.510**	.004	25	.718**	.000
11	.545**	.002	26	.545**	.002
12	.545**	.002	27	.482**	.006
13	.713**	.000	28	.712**	.000
14	.475**	.007	29	.714**	.000
15	.718**	.000	30	.713**	.000

**\*\* Statistically significant at (0.01), \* statistically significant at (0.05)**

Table (1) showed that the correlation coefficients between the test items and the total score of the test are statistically significant, either at the level of significance (0.01) or (0.05), which indicates the validity of the test's internal consistency.

#### Test reliability:

The reliability of the test was calculated through the equation (Cuder Richardson - 20) for the objective questions by applying the test to an exploratory sample from outside the study sample, which numbered (26) female students of the third intermediate grade in the Najran region. Table (2) shows that:

Table (2): Stability coefficients for the study tool (grammar skills test)

No	Skill	Reliability coefficient
1	Understanding	0.81
2	Discrimination	0.77
3	application	0.80
	Total	0.93

Table (2) shows that the test reliability coefficient on the overall score reached (0.93) while the skills ranged (0.77 - 0.81), and this indicates that the test has high stability.

#### Procedures of the study:

The researcher followed the following procedures: defining the problem of the study and its variables, then writing the theoretical framework and previous studies and comparing them with the current study, - then preparing the study tool (grammar skills test) in its final form after verifying the indications of its validity and stability in the Saudi environment, then preparing the teaching strategy according to the model Osborne-Barnes, the creative solution to the problems in teaching the Arabic language in its final form. Then the study sample was assigned by the method, and it was divided into two groups, namely: a control group and an experimental group, and meeting with them in the school

in a room equipped to implement the study tool for pre-measurement. Then, the teaching strategy based on the Azuburn-Barnes model, creative problem solving, was applied to the experimental group. Teaching was in an equipped classroom within the school. As for the control group, it was taught in the traditional way. In addition to verifying the effectiveness of the teaching strategy based on the Azuburn-Barnes model, creative problem solving, a method of developing grammar skills, the study tool (Grammar Skills Test) was applied as a dimensional measurement. Then the data was entered into the computer memory, and the social statistical analysis package (SPSS) was used to analyze the data and obtain the results, then the results were discussed, and recommendations were written.

#### Results:

The results of the study question: which stated "Are there statistically significant differences at the level of significance  $\alpha = 0.05$ ) between the mean scores of the experimental group students and the average scores of

the control group students on the scale of grammar skills attributable to the teaching method (Osborne-Barnes model: the creative solution For problems, the traditional way) ".

The fairness of the distribution of the scores of the control and experimental groups was verified on the pretest and the post test, so a t-test was used for the

Table (3): T-test for independent samples to demonstrate the significance of the differences between the mean scores of the experimental group students and the average scores of the control group students on the scale of grammar skills on the pre-application

Skills	Group	Number	Mean	S.D	T	D.F	Sig
Understanding	Experimental	27	5.56	1.08	.128	52	.899
	Control	27	5.59	1.04			
Discrimination	Experimental	27	3.56	1.25	.764	52	.448
	Control	27	3.78	0.84			
Application	Experimental	27	3.30	1.32	1.591	52	.118
	Control	27	3.74	0.59			
Total	Experimental	27	12.41	3.28	987	52	.328
	Control	27	13.11	1.71			

Table (3) shows that there are no statistically significant differences at the level of significance (0.05) between the mean scores of the control and experimental groups on the pre-measurement in the grammar skills

independent samples. In order to verify the parity of the groups, a t-test was used for independent samples to show the significance of the differences between the mean scores of the experimental group students and the average scores of the control group students on the scale of grammar skills on the pre-application, and Table (3) shows that:

test, as all the statistical significance values came to higher than (0.05), which indicates the parity of the two groups. To demonstrate the significance of the differences between the mean scores of the control and experimental groups on the post application, the (T) test was used, and Table (4) shows that:

Table (4): T-test for independent samples to demonstrate the significance of the differences between the mean scores of the experimental group students and the average scores of the control group students on the scale of grammar skills on the post application

Skills	Group	Number	Mean	S.D	T	D.F	Sig	Eta Square	Effect size
Understanding	Experimental	27	6.81	1.14	3.202	52	.002	.165	Large
	Control	27	5.85	1.06					
Discrimination	Experimental	27	5.22	1.25	2.642	52	.011	.118	Medium
	Control	27	4.37	1.11					
Application	Experimental	27	4.78	1.28	2.542	52	.014	.110	Medium
	Control	27	4.04	0.80					
Total	Experimental	27	16.78	3.25	3.264	52	.002	.170	Large
	Control	27	14.26	2.34					

Table (4) showed that there were statistically significant differences at a level of significance (0.05) between the average performance of the control and experimental groups on the post-measurement to test grammar skills, and the differences were in favor of the experimental group on skills (understanding,

discrimination and application) and on the total score of the test, where all the significance values came. The statistic is less than (0.05). The magnitude of the effect of the "Osborne-Barnes" model, the creative solution of problems in improving the overall grammar skills of the third-grade intermediate students in the Najran region,

came at a large level, as well as a great level on the skill of comprehension, and at an intermediate level on the skills of discernment and application.

### **Discussing the results:**

The results of this study showed an effect of the Osborne-Barnes model: the creative solution to problems in improving the grammatical skills of the Arabic language (comprehension, discrimination and application) of third-grade intermediate students in the Najran region, as the sample answers in the post test were higher than in the pre-test, which indicates An effect of Osborne-Barnes model: Creative solution to problems in improving grammar skills of third-grade middle school students in Najran region. This is attributed to the importance of the Osborne-Barnes model and its usefulness in giving students an opportunity to express and express their different opinions, participate, debate, dialogue and give expectations for the answer, which makes the student effective and positive in the learning process, which increases his interest in the lesson and thus ease of acquiring grammar skills. This is due to the fact that the Osborne-Barnes model increases the students' ability to use previous skills and information and remember it and retrieve it when needed, as it regulates the use of the mind, through sequential stages that make it easier for students to link information together and remember it. This can be attributed to the role of the Osborne-Barnes model in producing and generating the largest possible number of ideas in order to arrive at logical solutions as possible. Moreover, it affects the problem-solving skills of learners and pushes them to discover the grammatical problems they face and to work on solving them in a subjective manner. This was reflected in the improvement of the experimental group students 'achievement in grammar skills.

The Osborne-Barnes model also helped students (the experimental group) modify their cognitive framework, strengthen social interactions between them, through discussion in groups, and increase their motivation and focus on the topic of discussion, which helped them to refine their grammatical abilities and knowledge of everything surrounding grammatical rules of understanding, distinguishing and applying . The researcher believes that this model also helped the students (the experimental group) to collaborative research and communication in order to reach a full understanding of all aspects of the topics discussed in the unit lessons approved for teaching grammar, and this cooperative work contributed to increasing the ability of the experimental group members to train in mental

process (Understanding, discrimination and application). In addition, the circulation of the proposed ideas among members of the same group or between members of the group and other groups, between acceptance, modification and rejection of the ideas being discussed, increases the ability of students who have been exposed to the training program to take into account the views of others and amend their ideas accordingly which may have improved the flexibility skill of these students, which led to an increase in the appearance of appropriate responses during the achievement test in grammar skills.

### **Recommendations:**

Based on the findings of the study, he recommends the following recommendations:

- Directing the Arabic Language Curriculum Committee at the Ministry of Education in the Kingdom of Saudi Arabia to activate strategies based on the Osborne-Barnes model, creative solution to problems in building educational curricula in the subject of Arabic language for the intermediate stage.
- The adoption of educational officials in the Ministry of Education in the Kingdom of Saudi Arabia of the educational program based on the Osborne-Barnes model, the creative solution to the problems; Because of its clear impact on the development of grammar skills (understanding, discrimination and application).
- Attempting to conduct studies similar to the current study by uncovering the effect of the Osborne-Barnes model, the creative solution of problems in developing other skills of middle school students.

### **References:**

1. Al-Baja, Abdel Fattah (2010). *Methods of Teaching Arabic Language*. Amman: House of the March.
2. Al-Dulaimi, Ihsan and Al-Hiti, Nasser and Al-Jouani, Mjbel. (2012). The effect of using Osborne Barnes' model for creative problem solving on the metacognition skill of the fourth science students in mathematics. *Anbar University Journal for Human Sciences: Anbar University*, (3): 397-410.
3. Al-Hudaibi, Ali (2017). The effectiveness of a proposed program based on electronic thinking maps in developing grammatical concepts, articulation skills, and self-efficacy in grammar among Arabic language learners speaking other languages, *International Journal of Educational Research*, 41 (4), 229-271.



4. Hussain, Mona, and Nazal, Haider (2018). The Effect of Teaching History with the Osborne Model on Inferential Thinking among Fifth Grade Literary Students, (Rees) Journal of Social and Educational Sciences, 5 (7), 173-193.
5. Dawood, Hadeel (2018). The effect of the Osborne - Barnes model of creative solution to problems on life skills and critical thinking of second-grade intermediate students, Al-Ustad Magazine, 3 (226), 289-310.
6. Al-Zoubi, Shamma (2015). Building an educational program based on the theory of creative problem solving (TRESE) and measuring its impact on achievement and improving scientific thinking skills of primary school students and their attitudes towards mathematics, unpublished PhD thesis, International Islamic Sciences University, Jordan.
7. Saadi, Zakia (2018). The concept of the grammatical base of Sebawayh - the nominal structure as a model -, an unpublished master's thesis, Abu Bakr Belkaid University, Algeria.
8. Shahbaz, Intisar (2017). To the effect of Osborne's model on the acquisition of concepts among second-grade intermediate students in the subject of Islamic education, Journal of Arts, (123), 433-452.
9. Smadi, warrior (2010). The Impact of Training of Tenth Grade Students on the Osborne-Barnes Strategy: Creative Problem Solving in Improving Their Ability to Solve Engineering Problems, The Eighth Scientific Conference on Investing Talent and Duo Education Institutions "Reality and Ambitions", April 21-22, Zagazig University
10. Al-Smadi, Yahya and Abu Lum, Khaled (2011). The effect of a training program based on the Osborne-Barnes model on developing creative thinking skills in mathematics for female upper elementary school students in Jordan. Studies: Humanities and Social Sciences, 38 (6), 1907-1918.
11. Ali, Al-Fadl, and Ahmed, Osama (2018). Difficulties in comprehending Arabic grammar in university education for non-specialists as an academic requirement from the student's point of view, "The College of Education as a Model", International Journal of Humanities and Social Sciences, 1 (2), 1-29.
12. Grammar, Abdul Wahid (2015). Grammatical rules: rooted and detailed, Beirut, Lebanon: Dar Al-Kutub Al-Ilmiyya for publication and distribution.
13. My Money, Sabah (2014). Didactic grammar rules and their role in language development among third-year pupils. Medium: Arabic language book as an example, unpublished MA thesis, Qasidi Merbah University - Ouargla, Algeria.
14. Yousef, Afaf (2019). The Impact of Concept Mapping Strategy in Improving Grammar Skills among Seventh Grade Students in the Irbid Region, An-Najah University Research Journal (Humanities), 33 (1), 104-124.
15. Ramadan, Hiam. (2020). The effect of using electronic concept maps on understanding grammar. Journal of Educational and Psychological Sciences: National Research Center Gaza, 4 (3), 139-149.
16. Chang ,C .and Cheng , C .(2000). A study of the Incorporation of Creative Problem Solving and Cooperative Learning Strategies into Earth Science Instruction .Chinese Journal of Science Education. 8(3): 251-272.
17. Houtz , John C. (2002) . Exploration of A bilingualism and the Creative Process through a Problem Solving Model. Dissertation Abstract International ,62(7), 2344.
18. Hung ,W . (2003).A Study of Creative Problem Solving Instructional Design and Assessment in Elementary School Chemistry Courses. Chinese Journal of Science Education. 11(4): 407-430.
19. Kobe, L. M .(2002) . Computer- Based Creativity Training the Creative Process .Dissertation Abstract International ,62(8), 3835,A.
20. Abdullah, A. H., Omar, M. C., Sulaiman, A. A., & Muhamad, N. (2017). The Arabic Grammar Competence and Performance among Religious Stream Students at National Lower Secondary School, Terengganu, Malaysia. International Journal of Academic Research in Progressive Education and Development, 6 (3), 174-188.
21. Doak, C., Jambura, S., Knittel, J., and Rule, A. (2013). Analyzing the Creative Problem-Solving Process: Inventing a Product from a Given Recyclable Item. Creative Education, 4(9), 592-602.
22. Reali, P. (2008). Creating the Future: Conceptualizing a How-to Guide to Creative Problem Solving. Unpublished Master's Thesis, Suny Buffalo State College, New York, United States of America.