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The effect of Adey and Shayer Model on the Acquisition of the Grammatical Concepts by Preparatory School Students and Developing Their Attitudes towards Arabic Grammar Subject

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Abstract

The current study aims at finding out the effect of Adey and Shayer Model on the acquisition of the grammatical concepts by preparatory school students and developing their attitudes towards Arabic grammar subject. The sample of the study comprises (70) preparatory school students. Two instruments were adopted in that the first one is a test of the grammatical concepts with (30) items, while the second instrument an attitude test towards Arabic grammar subject with (29) items. The psychometric features of the two instruments were verified. Results show that there is a statistically significant difference between the two means of the grammatical concepts acquisition of the both the experimental group and the control one and in favour of the experimental group, and there is a statically significant difference between the mean of the two means of the developing the students' attitudes of both the experimental group and the control one towards Arabic Grammar Subject and in favour of the experimental group.

Key Terms: effect, Adey and Shayer Model, grammatical concepts, attitudes

El efecto del modelo de Adey y Shayer en la adquisición de los conceptos gramaticales por parte de estudiantes de escuela preparatoria y el desarrollo de sus actitudes hacia la asignatura de gramática árabe

El presente estudio tiene como objetivo descubrir el efecto de Adey y Shayer Model en la adquisición de los conceptos gramaticales por parte de los estudiantes de preparatoria y desarrollar sus actitudes hacia la gramática árabe. La muestra del estudio comprende (70) estudiantes de preparatoria. Dos instrumentos fueron adoptado en que el primero es una prueba de los conceptos gramaticales con (30) ítems, mientras que el segundo instrumento es una prueba de actitud hacia un sujeto de gramática árabe con (29) ítems. Se verificaron las características psicométricas de los dos instrumentos. es una diferencia estadísticamente significativa entre las dos medias de adquisición de conceptos gramaticales tanto del grupo experimental como del control y a favor del grupo experimental, y hay una diferencia estadísticamente significativa entre la media de las dos medias del desarrollo Actitudes de los estudiantes tanto del grupo experimental como del grupo de control hacia la asignatura de gramática árabe y en favor del grupo experimental.

Términos clave: efecto, modelo de Adey y Shayer, conceptos gramaticales, actitudes

1.1 Statement of the Problem

Based on the experience possessed by both researchers of the present study, they realized that most studies concerned indicated the aspects of deficiency in teaching and learning Arabic and a weakness in acquiring the grammatical concepts and also that the students have accustomed to memorization and on the prevailing traditional method of teaching. This can be attributed to several reasons, one of which is the use of the common traditional methods of teaching which in turn led to impede students' way of thinking.

In the light of the aforementioned, both researchers of the current study seek to solve such a problem through adopting Adey and Shayer Model which is a constructional one as well as raising 5th grade students' level (

Literary Branch) of competencies in acquiring the grammatical concepts and their attitudes towards Arabic Grammar Subject . Thus , the researchers have identified the problem of the current study in the following question :
-What is the effect of Adey and Shayer Model on the Acquisition of the Grammatical Concepts by Preparatory School Students and Developing Their Attitudes towards Arabic Grammar Subject ?

1.2 Significance of the Study

The officials of the educational process have realized the need to find out modern and effective means or the sake of aiding the individual in accepting and apprehending concepts as well as transferring abstract objects into concrete ones .Those officials have formed a modern view towards science , in that the learning methods in thinking and scientific research are considered more than information which are the product of thinking (Al-Jabouri, 2006: 109).

One of the instructional learning-based models that is Adey and Shayer's which was designed in the mid of 1980s by Adey , Shayer and Caroline Yeats. It a model that relies on thoughts of both Piaget's intellectual and cognitive growth , and Vygotsky's constructivist and cognitive ones (Zeitoun, 1992 : 87) .

Adey and Shayer Model aims at developing thinking in thinking through which students are encouraged to think about their thinking and developing their awareness in their own way of thinking in terms of the events and situations with which they interact .Also , through this model , students can get opportunity to cooperate positively with each other in having a common language for mutual understanding between them on the subject .This happens when they interact with the details in discussion which leads to a growth and an acceleration in their thinking .So, teaching according to this model implies teaching students o how to think in that this model works for thinking (Robertson,2001 : 65) .

Both researchers of the current study believe that the present time witnesses a remarkable renaissance in domains of technology accompanying a similar one in developing the education techniques in general, and developing teaching techniques of Arabic in particular .This is because developing techniques of teaching Arabic is the vital way for the continuity of the scientific renaissance which result in significant impacts in making changes the individuals' potentials in acquiring the grammatical and developing the attitudes of the 5th grade preparatory students towards Arabic.This stage of education is highly significant in the preparation of the learner as it works to consolidate what discovered o the learner's po-

tentials and attitudes towards the study subject .The preparatory stage is a preparation for pursuing university studies or inclusion and preparation for the practical and productive life .In this sense , tongues must be corrected from the grammatical mistakes and or the sake of safe articulation .Accordingly , both researchers have selected this school stage , specifically 5th stage (Literary Branch) .The value of the present study might be crystallized as follows :

- 1.The importance of Arabic language a bright torch in the darkness of the grammatical mistakes happened to Arabic which is the science that is derived from the speech of the Arabs whose Innateness has not been corrupted .
2. The importance of the grammatical concepts and the transference of its effect on 5th stage (Literary Branch) .
3. The importance of finding out new teaching or instructional models that are suitable for the grammar subject of the preparatory school and there is a need for further experimental studies , one of them is Adey and Shayer Model .

1.3 Aim :

The current study aims at finding out the effect of Adey and Shayer Model on the acquisition of the grammatical concepts by preparatory school students and developing their attitudes towards Arabic grammar subject .

1.4 Hypotheses :

Two null hypotheses are set by the researchers :

1. There is no statistically significant difference at level of significance of (0.05) between the two means of the acquisition of the grammatical concepts of the experimental group, which is taught according to Adey and Shayer Model , and the control group which is taught according to classical method .

2. There is no statistically significant difference at level of significance of (0.05) between the two means of developing students' attitudes of the both groups towards the grammar subject of Arabic .

1.5 Limits :

The current study is limited to :

1. 5th grade secondary and preparatory students' level (Literary Branch) at Kirkuk city during the academic year 2017-2018 .
2. first term during the academic year 2017-2018 .
3. The third units of the grammar textbook 1st edition , 2015 .

1.6 Definition of Basic Terms :

First : Adey and Shayer Model as defined by :

Ismaiel (2013,; 15) as “ a teaching model aiming at accelerating the cognitive growth of students and hastening them access the phase of formal thinking which contains four phases: preparation , cognitive conflict , thinking in thinking , and bridging “.

Operational Definition of the Model :

It is set of steps and procedures which are Adey and Shayer –based Model and followed by the researchers with the sample of the study in order to acquire the grammatical concepts towards the grammar subject an developing their attitudes towards this subject .

Second : Acquisition as defined by :

Salama (2004 : 53) “It is a specific phenomenon or relationship or mental deduction in terms of a word or specific term “.

Operational Definition :Grammatical Concepts Acquisition

It is the ability of the sample to find out the grammatical concepts and acquire and apply the grammatical rules from Arabic Grammar Textbook. The acquisition is measured by the total scores gained by the students in the grammatical concepts test prepared by the researchers .

Third : Attitude as defined by :

Mohammed (2012,; 177) as “ an aptitude acquired relatively till the individual’s responses are identified about other individuals or principles or ideas “ .

Operational Definition : Attitude

They are a set of acceptance or refusal responses of the sample towards the Grammar Subject .It measured by the total scores gained by students in the items scale test prepared by the researchers .

1.7 Theoretical Background

1.7.1 Adey and Shayer Model

This model appeared in the mid-1980 by Adey and Micheal and was designed in order to accelerate and hastening thinking levels of the learners into a higher level to enable them to achieve the objectives of the subject

studied in a better way in that it is not of importance of what the students learn , but what matters how students learn .The philosophy of instruction or teaching depends essentially on the notion that the student might become under the effect of situations o the concepts conflict with what he/ she already possesses of knowledge .In this sense , the role of the teacher here can be recognized in directing students with ideational questions that focus on exciting their attention and pushing them to organized thinking through effective participation which lead to increase the ability of criticism , innovation , and taking appropriate decisions(Imran, 2015 :466) .

1.7.2 Model's Presuppositions

- 1.Student knowledge grows through an active interaction with the environment by using processes of assimilation, and twinning .
- 2.Learning is a process of finding and developing a learning environment that provides students with experiences that enable them to exercise the specific cognitive processes .
- 3.Cognitive structures of the learner have the feature of dynamics which can be reconstructed with each new learner .
- 4.Learning is a process of accommodation exercised by the students to achieve equilibrium between the cognitive structure and environment variables .
5. The learner has got cognitive structures for each move he/ she does and these structures are in three patterns ; natural , social , and rational knowledge (Al-Wali,2015 : 218) .

1.7.3 Adey and Shayer Model Steps Application

Before starting the steps of applying Adey and Shayer Model , the teacher has to make a preparation by presenting an introduction for the sake of Stimulating the students' motive for the lesson subject as well as finding and forming a desire in learners to find out more about the lesson subject .

First Step : Preparation and Discussion / Pre Activity Step

This step is considered is the first stage after preparation in order to apprehend the lesson subject in that the teacher puts the general frame for presenting the problem which helps students finding out the new terms .

This stage or step covers the following ;

- a. The teacher proposes a problem to the students .
- b. The teacher tries to divide the students into groups to make the discussion more fruitful .
- c. This is not only the source of information or classroom manage-

ment , but a facilitator of the learning ng process and a director for all activities and discussions inside classroom which have an important role in developing the process of thinking .

d. The teacher asks many the individual and collective questions to create a mutual language for communication with the students .

e. The teacher provides opportunities to express the relationships they have attained or used or the procedures they have conducted (Ali, 2000 : 217) . .

1.8 Previous Studies

1.8.1 Imran, M. (2015) :

This study was conducted in Gaza and aimed at finding out the effect of Adey and Shayer in modifying the alternative images of the scientific concepts of 9th grade primary school students .The sample included (64) of 9th grade primary school students , one is an experimental group ,and the other is the control one with (32) students for each .A pre-test was administered for the sake of diagnose the scientific alternative images on the two groups .Results were analyzed to ensure the equalization between the two groups .Then, a post -test was administered to find out the significance differences between the mean scores of the of both groups in that arithmetic means , standard deviations , and correlation coefficient, t—test , percentages , Mann Whitney , Eta square , to find out the Effect Size ,were used .Results assured that there are many of the alternative images for the concepts of the flowering plant and its structure of the sample of the present study .,and also , as results revealed , there are statistically significant differences between the mean scores of the two groups in the pre-test , and finally the results showed that there are statistically significant differences between the students with high achievement and those with low achievement in both groups and in favour of the experimental group.

In the light of the above results ,the researchers have put a set of conclusions , one of them is that Adey and Shayer Model helped those students with low achievement in the process of learning in providing them with a series of mental processes according to individual abilities and aptitudes

that in turn helped in developing their thinking in a good form (Imran, 2015 :4) .

1.8. 2 Al-Khafaji, (2016)

This study was conducted in Iraq and aimed at finding out the effect of Adey and Shayer Model on the Acquisition of the Problem Solution Skills and developing their Mathematical Thinking by Secondary School Students . The sample covered (92) of 2nd grade secondary school students for the academic year 2015-2016 . The researcher has come up with the following results :

1. There is a statistically significant difference at a level of (0.05) between the two means of acquisition of the subjects of the two groups for Problem Mathematical Solution Skills , and in favour of the experimental group.

2. There is statistically significant difference at a level of (0.05) between the two means of developing mathematical thinking of the subjects of the two groups and in favour of the experimental group.

In the light of the results obtained , the researcher has set some conclusions , one of them is that the possibility of applying Adey and Shayer Model in teaching Mathematics Subject of 2nd secondary school texts , in addition to the Model's effect in acquiring the students problem solution Skills and developing their mathematical thinking .

1.9 Methodology and Procedures

First : The Experimental Design

The two researchers have adopted what is called “ Partially-regulated Design “ .This design comprises two groups ; experimental and control ones with the pre-and – post tests as the following Figure shows :

Figure (1) Partially-regulated Design

No.	Group	Pre-Test	Independent Variable	Dependent Variable
1.	Experimental Group	Attitude Towards the Subject	Adey and Shayer Model	Acquisition of the Grammatical Concepts and Developing Attitudes Towards the Subject
	Control Group		Classical Method	

Second : Population and Sample

a. Population

The population of the current study covers all 5th Grade Preparatory School Students (Literary Branch) at Kirkuk Governorate with a total number (6531) students distributed over (87) Secondary and Preparatory schools during the academic year 2017-2018 .

a. Sample

The sample of the study comprises (85) students , distributed into (40) for section (A) and (45) for section (B) .After excluding statistically the failure students from the sample , (2) from section (A) and (13) from section (B) ,the total number of the sample had become (70) male and female students , distributed into (38) in the experimental group (section A) and (32) in the control group 9 (section B) as shown in table(1) below :

Table (1)

Sample Distribution into the Two Groups of Study

Section	Group	Number of students		
		Before exclusion	After exclusion	Sample
A	Experimental	40	2	38
B	Control	45	13	32
<i>Totality</i>	2	85	15	70

Third : Groups Equivalence

- a. Age in months .
- b. 4th Preparatory School Students' marks in the Holy Qur'an and Islamic Education Subjects .
- c. Scores of IQ Test .
- d. Scores of Attitudes towards the Subject Pre-test .
- e. Fathers' educational level .
- f. Mothers' educational level .

The two researchers have obtained the data on the previous variables that have been derived from Student's Card and Record Marks in cooperation with the school administration .Then, the arithmetic mean , standard deviation , and two –independent sample t-test were administered as illustrated by table (2) below :

Table (2)

T-test Results of the Two Groups Equivalence in Specific Variables

Variable	Group	Number	Arithmetic Mean	S.D	T-Value	
					Computed	Tabulated
Age in Months	E	38	158.947	4.006	1.072	Significance Level 0.05 and Degree of Freedom 68
	C	32	158.000	3.252		
Subject Marks in 4 th Grade (Literary Branch)	E	73.342	12.342	0.768		
	C	75.781	13.818			
IQ Score	E	38	34.0526	6.6655	1.206	
	C	32	35.7188	4.4376		
Pre Attitude	E	38	63.1842	6.7498	0.910	
	C	32	61.9688	3.6938		

Fourth Lesson Plans

The researchers have prepared two lesson plans , the first one according to Adey and Shayer Model , while the second one is according to the classical method .Each plan lasts for (45) minutes per lesson .Both plans were subjected to a group of jurors .Some modifications were conducted on the plans of both groups , the experimental and control ones .

Fifth : The Instruments

1-Grammatical Concepts Test

Due to the unavailability of a ready-made standardized test with veri-

defined psychometric features and covers the subjects under study, the two researchers have constructed a subjective test with (30) items distributed into (10) grammatical concepts that measures the basic components of the concepts (Definition, Discrimination, Administration) according to Bloom' Taxonomy of the Cognitive Domain (Remembering, Compression, Application). The two researchers have verified the validity of the test such as item simplicity and discrimination and the effectiveness of its items, in addition to test reliability.

2. Attitude Towards The Subject Scale

The two researchers have constructed an attitude towards the Subject Scale with items according to attitude concept. This concept has two dimensions, one positive and the other is negative in accordance with Likert Scale with three levels; Always, Sometimes, Rarely, with grading score for responses as (3-2-1) for positive items and (1-2-3) for negative ones. The psychometric features of scale have been verified as well as its reliability using repetition and Alpha Conbach Formula.

Sixth : Application of the Experiment

The experiment was carried out on Wednesday 1, Nov., 2017 up to 8, Monday, Jan., 2018, thorough which the Experiment group was taught according to Adey and Shayer Model, and the control one according to the classical method as illustrated below:

.The Experiment Group :

This group was taught, by one researcher, by presenting an introduction to the new lesson. In this sense, the researcher set a problem on one of the topic of Arabic Grammar following Adey and Shayer Model's steps. Then, the researcher reached to final conclusion or deduction by writing down the concepts of the lesson on the whiteboard.

.The Control Group :

This group was taught, by the same researcher, by presenting an introduction to prepare the students' minds to the new lesson. Then after, the researcher introduced the title of the new lesson and its concepts on the whiteboard. Having explained the new lesson and assured the students' apprehension, the researcher wrote down the summary on the whiteboard to be written down by the students in their notebooks.

Seventh : Application of the Instruments

Having carried out the experiment the two instruments of the study, namely, Grammatical Concepts Test and Attitude Towards the Subject Scale, were administered on 11, Thursday, Jan., 2018 for the first instrument and on 15, Monday, Jan., 2018 for the second one on both groups.

Eighth : Extraneous Variables Adjustment

Adjusting the extraneous variables is one of the most important procedures followed in any experimental research in order to achieve an acceptable degree of the internal validity of the experimental design and also to enable the researcher to ascribe most of the variance in the dependent variable to the independent one in the study and not to other variables (Melhem,2000 : 71). It is well-known that the design safety has two aspects , one of them is internal , and the other one external. Thus, the two researchers tried as far as possible to avoid the effect of the extraneous variables which , as related literature and previous studies indicated, effect the experimental design safety adopted in this study as shown in the procedures below :

a. Experiment Conditions and Accompanying Events

The researchers have confined the effect of this variable by controlling the Experiment Conditions of the two groups through exposing the two groups of the experiment to the independent variable to more take precautions for other casual conditions such as sudden vacations .

b. Processes Related to Maturation

As time progresses , many factors may appear that effect the results such as the intellectual and social growth of the subjects of the experiment. Due to the fact that the students of both study groups are subjected to the same growth processes , same conditions and in a fixed time .So, these procedures had reduced the effect of this variable .

c. Experimental Extinction

The researchers have confined the effect of this variable by assuring that the subjects of the experiment hasn't any intention to leave the experiment .In order to avoid the occurrence of this variable , the two researchers have reduplicate the procedures of equivalence rearrangement the sample of the study according to the statistical equivalence .

d. Differences in Sample Selection

The sample of the current study , 5th grade preparatory school students, comes from the same economic, social ,and cultural class as well as this sample has randomly been distributed and their ages ranged between 16-17 years old after excluding the previous study repeaters .In addition , the two researchers have statistically made equivalence between the two groups of the study in 6 variables that helped controlling the effect of this variable.

e. Instruments of Measurement

Having administered the same two instruments of the present study in testing the two groups of the study led to confine the effect of this variable.

f. Statistical Means

The two researchers have utilized the following Statistical Mean in conducting the procedures of this study :

t-Two-interdependent Test-test

$$\frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{SP^2}{n1} + \frac{SP^2}{n2}}}$$

1.10 Results and Discussion of Results

This section is mainly concerned with the results obtained by the two researchers in the light of the two null hypotheses and to be discussed as follows :

First : Results Related to the First null Hypothesis : “There is no a statistically significant difference at level of (0.05) between the two means of the grammatical concepts acquisition of the Experimental group and the control one “. The two researchers have derived the arithmetical mean and Standard deviation of the grammatical concepts acquisition of the experimental group and the control one in order to verify this hypotheses. Then , two –independent sample T-test was conducted to verify this hypothesis as shown in table (3) below :

Table 3

T- value of the Exp. And Con. groups in Grammatical Concepts Acquisition

Group	No.	Mean	SD.	Computed t- value	Tabulated t- value	d.f.	Level of significance
EG	38	26.7368	3.445	4.454	1.997	68	0.05
CG	32	21.9375	5.482				

As table (3) reveals , the computed t- value is found out to be (4.454) which is higher than the tabulated t- test value which is (1.997) , at the level of significance of (0.05) and a degree of freedom of (58). This means that there is a statistically significant difference between the between the two means of the grammatical concepts acquisition of the experimental

group and the control one , and in favour of the experimental group .Thus, the first null hypothesis is rejected and an alternative hypothesis .

The two researchers attribute this result to the effect of the Adey and Shayer Model whose steps helped the subjects of the experimental group to acquire the grammatical concepts appropriately with percentage (89%) and o the control group is (73) . The two researchers see this acquisition of the experimental group comes from the application of the model above that made the classroom environment as an active and effective one which helped the sample to acquire the grammatical concepts and integrate these concepts with the cognitive structure to form a new cognitive construct .On the other hand , the process of concepts acquisition in general and the grammatical ones in particular requires an organized effort through sustaining the connection and communication process of the students despite the progression of the experimental group over the control one in acquiring the grammatical concepts ,but there is also an acceptable level in acquiring the grammatical concepts of the control group which was (73%) .This refers to the concern and interest of the two researcher , who taught this group according to the model’s steps .

Second : Results Related to the Second null Hypothesis : “There is no a statistically significant difference at level of (0.05) between the two means of the developing the attitude of the Experimental group and the control one towards Arabic grammar “ .The two researchers have derived the pre- and post- arithmetical means and the difference between them as well as Standard deviation .Then, two –independent sample T-test was conducted to verify this hypothesis as shown in table (4) below :

Table (4)

T- value of the Exp. And Con. groups in Grammatical Concepts Acquisition

Group	No.	Attitude Arithmetic Mean			S.D of Difference	T-Value	
		Pre	Post	Difference		Computed	Tabulated
E	38	63.184	69.736	6.552	3.853	5.889	1.997 at Level of significance 0.05
G	32	61.968	64.000	2.0313	2.177		

As table (4) shows, the computed t-value is found out to be (5.889) which is higher than the tabulated t-test value which is (1.997), at the level of significance of (0.05). This means that there is a statistically significant difference between the between the two means of the developing the attitude of the Experimental group and the control one towards Arabic grammar, and in favour of the experimental group. Thus, the second null hypothesis is rejected and an alternative hypothesis is accepted which states: "There is a statistically significant difference between the between the two means of the developing the attitude of the Experimental group and the control one towards Arabic grammar".

The two researchers attribute this result to the effect of the Adey and Shayer Model whose steps inside the classroom which helped the subjects of the experimental group and created an encouraging and safe learning environment as well as practicing skills of conversation and dialogue to arrive at massive deductions. This led to enable the students to acquire the grammatical concept and to retain it for a long time.

1.11 Conclusions

1. The effect of Adey and Shayer Model on the Acquisition of the Grammatical Concepts by 5th Preparatory School Students (Literary Branch) of the experimental group as their peers in the control group.
2. The effect of Adey and Shayer Model on the Acquisition of the Grammatical Concepts by 5th Preparatory School Students (Literary Branch) who was taught according to this model as their peers in the control group.
3. The possibility of employing Adey and Shayer Model in teaching Arabic grammar subjects prescribed for Iraqi 5th Preparatory School Students.

1.12 Recommendations

1. Holding in-service courses for teachers of Arabic by General Directorate of Education in Kirkuk on modern strategies and grammatical concepts acquisition-based models.
2. Directing attention of teachers of Arabic towards focusing on the grammatical concepts, and giving a basic role in teaching and motivating the students towards the subject.

1.13 Suggestions

1. Effectiveness of an instructional Adey and Shayer Model-based program for teachers of Arabic to acquire the effective teaching skills.
2. The effect of Adey and Shayer Model on the achievement of 5th Preparatory School Students for Literature and Texts Subject and developing

their reflective thinking .

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