International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 7, 2020
ISSN: 1475-7192

Effecting of Denis's Model of Achievement and Orientation Towards Science

Asst. Prof. Dr. Ibrahim Muhi Naser[1]

Abstract: *The science subject is considered one of the important and basic subjects in the basic education level , therefore, achieving the goals of teaching science at this stage of study is very important, for this reason, the researcher tried to help the teachers of this subject in achieving these goals, especially that achieving that effort from teachers must be accompanied by the presence of positive motives and attitudes among learners to learn these topics. The researcher has found that most of the teaching methods and approaches used by teachers also do not help in developing trends and tendencies towards the subject of science, especially those related to solving mathematical problems and processes that require mathematical efforts. So, the researcher worked to solve this problem by choosing a model based on educational games, and to convert the classroom room to a place for practice, some educational games, in order to achieve the goals of the scientific subject. Therefore he used this model with the experimental group and studied some of the vocabulary of the course, while the same vocabulary of the control group was studied in the usual way and at the end of the experiment the two groups were tested with a dimensional test and it was corrected and its results were treated with the T test for two separate samples the superiority of the experimental group that was studied according to the Deans model based on educational games was also measured, and the attitudes of learners towards this material were measured by a measure of the direction prepared for this purpose before and after the experiment was carried out. It also showed the superiority of the group that studied the Deans model in this variable over the control group.*

Key words: *effectiveness - model - Deans - science - achievement – direction*

I. INTRODUCTION:

A number of students suffer from difficulties in learning scientific subjects and their basic skills in the different academic stages. These difficulties are evident in the middle school level because it is a transition stage within the stages of mental development in the sensory processes to mental processes. (Miqdad, 1992).

Most of the difficulties that students face in learning the scientific subjects and the basic skills that are related to them are due to several factors, the most important of which are common teaching methods and methods, a large part of which still pays great attention to memorization, memorization and memorization processes, it rarely cares about motivating students and urging them to use higher mental processes such as analysis, reasoning, composition, evaluation, and other processes. (Bill Frederick, 1986). Therefore, an effort must be made by educators and specialized researchers to develop students' abilities in scientific subjects, and overcoming the difficulties that students face in learning basic skills and converting learning inside the classroom from the process of indoctrination, receptivity and memorization by students to an interactive process based on providing them with educational skills that enable them to learn on their own, and this is what drives these researchers and educators to go towards developing and creating new models that are more effective and impacting In achieving these goals, perhaps the Deans model is one of those educational models that would affect students' achievement, assimilation, and formation of the basic skills needed in science, at the same time, it leads to

College of Education for Pure Sciences, Department of Physics, University of Babylon-Iraq [1]
E-mail: ibrahimmuhy@gmail.com

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

forming positive attitudes among students towards this subject. Therefore, this model is a modern educational method that may play an effective role in addressing some of the problems experienced by students in the science subject, including the problem of low level of achievement and lack of direction towards this subject.

1.1 The study problem: lies on the difficulties that middle school students face in learning scientific subjects and concepts and their effects are reflected on learning these materials and assimilating them, and therefore lead to a low and weak academic achievement and a lack of their attitude towards this subject, so models should be used to address this problem, including the Deans model.

1.2 The aims of study : the current study aims at:

A. Measuring the effectiveness of the Deans model in achieving the average first graders 'level in science.

B. Measuring the effectiveness of the Deans model in the attitudes of middle school students towards science.

1.3 The hypotheses of study:

A. There is no statistically significant difference at the level of significance (0.05) between the average score of students of the experimental group that is studying using the Denis model and the average score of achievement of the control group that uses the usual method.

B. There is no statistically significant difference at the level of significance (0.05) between the average degrees of direction of students of the experimental group that are taught using the Denis model and the average degrees of direction of the control group that uses the usual method.

1.4 The significant of study:

The various branches of science and knowledge have contributed to scientific and technological progress. It helps students know their problems, and the problems of their community, and contributes to developing solutions to these problems, and then scientific thinking has become a prerequisite for the present era, and science is a component of culture that cannot be dispensed with in all fields. (Al-Man'a, 1996).

The science curricula have witnessed fundamental changes since the appearance of the signs of development in the fields of knowledge, especially in the second half of the last century, and this was reflected in the perception of the nature and structure of knowledge, while the traditional view was that science, a set of fixed facts, laws and scientific theories, was discovered and organized by scientists to control and control the phenomena of the universe, the modern view sees that science is not only a dynamic, cognitive, and knowledge building, but a human activity that does not know stability and inertia and goes beyond that to the way in which this knowledge is acquired. The movement of innovation in the science curricula since its inception emphasized the interaction between scientific knowledge and the scientific method, and in particular between scientific theory and scientific experimentation. (ibid)

Academic achievement during the elementary school stage is followed by general mental preparation. As for the special abilities, its effect is very little because it has not yet opened up. What excels in a substance is shown to excel in the rest of the subjects, a student in science excels and appears weak in geography, which calls for the unification of the curricula in the relatively elementary stage while it varies in the intermediate stage to suit the students 'diverse needs (Al-Gharib, 1985).

Achievement is affected by two types of variables, there are variables which affect the achievement positively, so its development and raise its level, and others that affect negatively and reduce its level. The process of developing the skills

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

and capabilities of learners and increasing their academic achievement does not come from adopting only modern curricula, rather, it is necessary to pay attention to the basic pillar that parallel the curriculum of the educational process, which is the teaching methods and approaches , given its effectiveness in translating the content of the subject into educational, social, and educational performance that contributes to the growth of the personality of learners and the development of their mental, social and physical skills. (Al-Khawalada, 1997).Accordingly, interest in teaching methods has increased in the last decades of the last centuries, as emphasis has been placed on scientific research that addresses the educational scientific nature and its methods , perhaps the phenomenon of experimental scientific research is the beneficial infection that education brings from the world of industry and production. (Taha, Abu Houlaq, 1997).

The adopting the appropriate method in teaching facilitates the process of achieving the required goals and makes the information in the eyes of the learner leave a positive impact on his psyche, so that he accepts education automatically, driven by his desires and inclinations, therefore, the teacher must prepare all his educational information during the teaching process. (Al-Smadi,1987)

Many educators are focused on their researches to finding new models to overcome the difficulties of teaching science and have come up with several models. Perhaps the model of Deans is one of these models that may help to increase achievement and this in turn may change their attitudes towards the material, creating positive trends toward subject, Deans believes that we can provide students with a lot of diverse experiences by using certain forms or materials that are designed with precision, which creates an educational situation in which students can strip scientific concepts that suit them, and thus the problem of creating the interaction process between the student and the concept structure is at a level the interaction between the teacher and students occurs, and here lies the essence of the learning process. (Al-Amin, 2001).

Deans explained that the learner has the ability and tendency to distinguish between a symbol and what it symbolizes and focus on how to use that symbol. (Al-Saffar, 1986). Many of the scientific concepts that are taught focus on written symbols, and many students perform operations on scientific symbols by understanding the meaning behind these symbols (Kahlout, 1999).

Educator Deans emphasizes helping students form scientific structures and ideas through sensory experiences that students practice in understanding the scientific structure that the teacher chooses to be the cornerstone upon which the student relies on learning science. (Samurai, 2002). Upon following a specific educational program, the student may have a certain tendency and directions towards learning the subject, and the directions may be positive or negative depending on the type of material or method used in learning it and the extent of its relevance to the reality of the student and the extent of their compatibility with his desires and needs as the trend measures do not measure the student’s achievement level but rather the type The directions I acquire for learning science. (Al-Sharif, 1997)

Several studies and researches have been conducted that emphasize the active role of the learner in the learning process, as well as the importance of direct interaction towards the learner and its development, especially that learning scientific skills depends not only on performance to show machine skills but also on the way of thinking and understanding. (Abu Raya, 2001).

Through examining the researcher on studies and literature that dealt with the topic of direction, achievement and learning of scientific concepts, it can be said that the use of physical methods in teaching scientific concepts may facilitate the learning process for students. This is what the Denis's model of teaching depends on. The use of modern learning models and methods in teaching, including the Denis model, may improve the level of students in achievement in the

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

science subject and this is reflected in their attitudes towards the subject, and in light of the foregoing, the overall importance of the current research can be summed up as follows: -

1. Prompting students to construct conceptual structures through the sensory experiences which the teacher chooses.
2. Helping course teachers to gain a correct understanding of scientific concepts through direct practice.
3. Developing the classroom environment and increasing class interaction between students and the teacher. This is what modern education calls for.

1.5 The procedure of study

1.5.1 Community of study : The research community consists of middle-grade first-graders in middle schools affiliated with the Babylonian Education Directorate.

1.5.2 Sample of study: The sample of study consists of (40) students who were equally randomly chosen from the study community, their parity was determined by the variables of time age and obtained from the school card and intelligence and was measured by the Raven matrix and the previous achievement in the science subject and obtained from the student's school document and their grades in The trend scale is as shown in the following table:

Table No.(1)

Calculated mean values, standard deviation, calculated (T) and tabular (T)

Variables	Experimental group		Control group		(T) Calculated	(T) Tabular	Degree of freedom	Significance at 0.05
	rithmetic mean	standard eviation	Arithmetic mean	standard leviation				
Age	156.2	8.46	155.6	8.46	0.22	1.7	38	Not statistically significant
Intelligence	28.95	9.17	29.35	9.06	0.131			
Science degree	74.85	12.26	57.7	10.37	0.231			
he trend towards science	35.15	10.37	35.7	13.85	0.141			

Study experimental design:

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

The researcher approved experimental design with two sets of equivalents only with dimensional testing

Diagram no. 1

Study Experimental Design

Group		**ndependent variable**	**Dependent variable**
Experimental	Equivalence of the two groups	e Dines Model	Achievement and direction
Control		----------	

Requirements for the experiment: For each experiment, the researcher must prepare a set of necessary requirements to be applied in the required manner. For this study, the requirements can be limited to the following:

1. See the science subject that will be implemented during the first course of the study, identify the chapters that will be subject to the experiment, conduct a content analysis of those chapters to extract facts and concepts and define them accurately.

2. Preparing the teaching plans for each lesson and subject and equipping the laboratories with the material requirements. The plans were prepared in the form of two models, one of which is according to the Dines model taught to the experimental group and the other is regular teaching plans taught to the control group for the study.

3. Preparing the post-test to measure achievement as well as the trend scale according to the steps of building tools, from defining a study subject and behavioral goals, formulating paragraphs, and extracting truth and stability for the two tools to be ready for application after completing the experiment.

Application of the experiment: With the beginning of the academic year 2-10-2018, after completing the division of students, the reason for the first stage

people on 12/10/2017, the researcher, in cooperation with the subject teacher, began to implement the experiment, as the research groups were divided into small groups in each of the two divisions, and the first class was taught with a Dines model, to be an experimental group, while the second course was studied in the usual way to be a control group, and all vocabulary and science lessons were completed until the end of the experiment on 7/5/2018.

1.6 Previous studies

A- Study of (Al-Shahrani,2001) (The effect of using Dines pieces on teaching mathematics in the fourth and sixth primary grades) The study was conducted in the Kingdom of Saudi Arabia. It aimed to know the effect of using the Dines pieces on teaching mathematics in the fourth and sixth grades. The sample of the study reached (115) students in a school, randomly selected (53) students in the fourth grade and (62) students in the sixth. He used statistical methods. T-test, Pearson correlation coefficient, and the study concluded the most important results of which are the effect of the Dines model.

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

B- Study of (Al-Samarrai,2002) (Estimating the Need for Deans in the Light of Mathematics Books Content for Elementary Stage), this study was conducted in Iraq, it aimed to assess the need to provide a Deans teaching tool in light of the content of mathematics textbooks in the first four grades of primary school, in this study, the unit of the page was used as the unit of analysis, as experts estimated the need at three levels:

- The method is needed.

- There is an urgent need for the means.

- The instrument should be provided, and use the following statistical means: -

Pearson correlation coefficient, Spearman's equation, T-test, and results show that Dines should be provided for each of the first four grades of primary school (Samurai, 2002).

C- Study of (Mustafa, 2004) (The effect of learning styles models on the achievement of fourth-year students and their attitudes towards mathematics). The study was conducted in Iraq and aimed at identifying the effect of teaching on the learning methods used in the achievement of fourth-year (secondary) female students and their attitudes towards mathematics. The study sample consisted of (147) students, distributed among three experimental groups, each group includes (49) students. An achievement test was prepared after a multi-choice type consisting of (30) items, which measures the level of student achievement in mathematics. To achieve the aims of his research, the researcher used statistical methods: - Pearson correlation coefficient, mono-contrast analysis, Duncan test, the study concluded the results, the most important of which was the positive effect of the Dines model for the benefit of the experimental group. (Mustafa,2004)

II. DENIS'S MODEL

Denis believes that teaching science in an event requires attention to the individual, so we can provide students with a lot of diverse experiences by using some forms or materials that carefully designed, which creates an educational situation from which students can strip scientific concepts that suit them, thus, the problem of creating the process of overlap between the student and the concept structure to be at the level of occurrence of overlap between the teacher and students. (Al-Amin, 2001).

Denis emphasizes that, to increase achievement among students, the teacher must realize that the structural aspect of thinking grows with the child before the analytical side, and then that the scientific concepts of students are more related to the synthesis side of thinking than the analytical side, and this is what the teacher must consider when assessing scientific concepts.

2.1 Denis's basic learning principles

2.1.1 *The principle of dynamism:* This principle states that all scientific abstractions, including scientific abstractions, are based on sensory experiences that a child actually exercises, that is, understanding the scientific ideas and concepts comes by stripping this idea or concept from a number of things that embody this idea or concept or this abstraction, but the scientific idea is a process that goes through three successive continuous stages and as follows: -

A- The first stage: This stage is called the primary stage or plat stage, at this stage the student is exposed to some components of the idea for a long time and through sensory things, for example, the infant (plays) with sounds , before he has a feeling that these sounds will later be the basis of language, the child when he finds something real, the first

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

thing that he does with this thing is to play with it and through this play he is inevitably exposed to some components of an idea, for example, when a child plays with a group of things, the way of playing is completely random, as he may build from these things forms, even if they are not regular, or it may divide it into different groups, and so on, but during this construction or during the division it may be exposed to some properties of space or size, but in a concrete and indirect way, and this stage is necessary to learn any idea or concept. (Al-Amin, 2001).

B- The second stage: This stage begins when the person begins gradually and perhaps very slowly noticing some properties or components of an idea or concept. The child who was manipulating the sounds begins, for example, by knowing that the issuance of a certain sound is accompanied by an accident. Construction is used at this stage to give the child tasks that provide him with direct experiences to build the concept until it is learned (Al-Amin, 2001).

C- The third stage: This stage comes when the person absorbs the idea or concept and all of it becomes meaningful to him. At this stage, the idea is fixed , applied ,coordinated with the set of previous ideas, initially it is a random application through which new ideas and concepts are formed. That is, this stage of application with this newly absorbed idea. It will be a first stage, an introductory stage, or a stage of playing with new ideas or ideas. Thus, the course continues to build experiences, experiences, and the principle of dynamics is the general framework through which learning takes place, as this stage is a training stage that plays a two-dimensional role. (Al-Sharif, 1997)

2.1.2 *Cognitive reasoning principle:* This principle states that learning the scientific idea or concept through a presentation by means of sensory or semi-sensory things or experiences that are different in appearance leads to experience by realizing its characteristic or general characteristics of a number of different incidents or things. (Al-Sharif, 1997)

2.1.3 *The principle of mathematical change:* The rule of mathematical change states that the awareness of the mathematical concept or concept through situations or incidents in which variables that are not related to the idea or concept follow, while the variables of constant relationship remain in all situations or accidents, which leads to abstraction by forming a set of accidents or things that somehow grow together (Al-Amin, 2001)

2.1.4 *The principle of constructivism or formative:* This principle simply states that the formation of an idea or concept must precede the analysis of this idea or concept. Denis believes that the important thing in learning science is the actual understanding in every scientific structure and the relationships between different structures, then the ability to deal with this relationship, that is, the ability to strip it and apply it in real situations. (Al-Sharf, 1997).

2.2 The stages of learning mathematical concepts in Denis

2.2.1 *The stage of free play:* This stage includes direct and unguided activities that allow students to abstract and manually and abstractly handle some components of the information to be learned, as far as possible, this stage should be free and unrestricted, as if the student were doing it for fun and enjoyment, however, the teacher should provide a variety of rich materials within the reach of students. This stage is an important stage of the Denis model, even if it appears to be of no value in the eyes of the teacher who is used to teaching mathematics in a dumping method, at this stage, students first get to know many components of the new concept, which prepares them to understand the mathematical structure of the concept, and this can be used when teaching according to the Denis model.

2.2.2 *The stage of the games*: During this stage, the pupils are ready to experiment and change the rules of the games set by the teacher, the development of new games, when they discover the rules that define these games and these games

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

help to analyze the mathematical structure of the concept as well as to discover the mathematical and logical elements of the concept. (Al-Amin, 2001) The first and second stages are often combined in one stage.

2.2.3 *Searching for common properties*: - Students may not be able to discover the mathematical structure that the concept shares in it until they play different games using many of the sensory components of the concept. Students will not be able to classify examples that are included under the concept from examples that do not represent this concept until they are familiar with the common properties of these examples. Dines suggests that teachers help their students to discover the general properties of the structure in the various examples of the concept by explaining that any example can be translated into another example without changing the abstract properties that all examples share. (Bill,1986)

2.2.4 *Representation:* After noting the common elements of the concept in each example, students need to know one example of the concept, the teacher may present, it combines all the common characteristics found in each example. It may be an illustrative or verbal or comprehensive example, and such an example helps them (sorting) the common elements found in all examples indicating the concept and is more abstract than all the examples, which helps students to understand the abstract mathematical structure included in the concept (Bell, 1986)

2.2.5 *Coding:* At this stage, the student needs to form appropriate verbal and mathematical symbols to describe what he understood about the concept, each student may invent his symbolic example for each concept. Teachers should interfere with their students' choice of the symbolic system so that there is no conflict with the scheduled textbook and the teacher must explain to students the value of good symbolic systems in solving problems. On the proof of theories and explanations of concepts (Bell, 1986).

2.2.6 *Formation:* After students learn the concept and the mathematical data related to it, to structure the properties of this concept and know its results, the basic characteristics of the mathematical structure are the axioms of this system and the properties derived from it are theories, while mathematical proofs are the procedures used to reach the theories of postulates, and the student at this stage examines the results of the concept and uses it to solve pure and applied mathematical problems, These six stages describe the general characteristics of any practical sequence that leads to notable development and summarizes the idea given. (Bell,1986)

2.3 Direction

Components of the direction: it consists of three overlapping components:

2.3.1 The *cognitive component:* It represents the first stage in forming, the trend includes a set of knowledge and beliefs related to the subject of the trend. These cognitive components may be weak for the person who prefers a certain thing, but he is unable to justify it and it may be strong when the person who has a negative attitude towards some things (Yatsinj, 1977).

2.3.2 *Emotional component (Passive):*It represents the second stage in the formation of the trend and includes the individual feeling comfortable or uncomfortable with love or hate on a particular subject, and some trends may have almost no epistemological foundations and only represent emotional components, the individual may have positive attitudes toward a specific person and he cannot determine the reason for this (Trivers, 1979)

2.3.3 Behavioral *component:* - It represents the third stage in the formation of direction and includes a set of typical scientific patterns or behavioral preparations that are consistent with knowledge and emotions about the direction of the trend. (Olives, 1986).

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

2.4 Stages of forming trends

2.4.1 *Cognitive stage:* It is the stage in which the individual realizes the stimuli of the environment and learns according to which he acquires experiences and information that serve as a knowledge frame for these stimuli.

2.4.2 *The orthodontic stage:* It is the one in which he interacts with stimuli in light of the cognitive framework that he has for it, on many of his feelings and feelings that relate to it.

2.4.3 *Estimated stage:* It is the last stage to form trends, in which the individual issues the decision regarding its two types of relationship with these stimuli and their elements. If the decision is positive, the individual is a positive trend towards that subject or stimulator. (Abdel Rahman, 1983)

III. DATA ANALYSIS AND DISCUSSION

After completing the implementation of all lessons and the end of the semester, the researcher and the subject teacher applied the achievement test prepared by the researcher to measure students 'achievement in the subject of sciences, as well as the measure of the trend towards matter and the extraction of the final grades of the experimental group for research and the degrees of the control group for study.

Table No. (4)

T-test results, freedom degree, and tabular value (T) of achievement and direction variables

Experimental group				**Control group**			**alculated**	**ıbular**	**atistical ificance at 0.05**
	ımple size	**Arithmetic mean**	**andard ation**	**ımple ıme**	**Arithmetic mean**	**andard ation**			
chievement	20	79.05	12.77	20	67.4	13.68	2.78	1.7	F.
rection	20	44.5	10.67	20	31.7	10.84	3.76		F.

4.Results: With reference to the previous table (4) it is clear that the calculated T value is greater than the tabular and this is evidence of the presence of statistically significant differences between the two research groups in the achievement variables in science subject and the direction towards science subject and because of teaching according to the Denis's model.

IV. REFERENCES

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019

[1] Abdul Rahman S., (1983): Human Behavior and Measurement of Variables, Al-Falah Library, Kuwait.
[2] Abu Raya, M. and Narjes H., (2001):The Effect of Using the Learning Strategy of Playing through Computer to Acquire the Sixth Grade Students with the Skills of the four Mathematical Operations, Educational Science Studies, Journal 28, No. 1.
[3] Al-Amin I., (2001): Methods of Teaching Mathematics, Theories and Application, Edition 1, Dar Al-Fikr Al-Arabi, Cairo.
[4] Al-Kahlout A., & Al-Hamouri., H., (1999) : The Extent of Mastery of Students of Fourth to Sixth Grades in the Capital, Amman, the concept of fracture, Dirasat Journal, Journal (26) No. (2).
[5] Al-Khawaldeh M.,& Others (1997) :General Teaching Methods , Edition 1, Ministry of Education, Yemen.
[6] Al-Ghareeb S., (1985): The Calendar for Psychological and Educational Measurement, The Anglo-Egyptian Library
[7] Al-Samarrai F.,(2002): Estimating the Need for Deans Teaching Method in the Light of Mathematics Books for Elementary Stage, Al-Fateh Magazine, Issue (2), Diyala University.
[8] -Al-Saqqar, A., (1986): Modern Trends in Teaching School Mathematics, Edition 1, Baghdad University, College of Education
[9] Al-Sharif A., (1997) : Introduction to Teaching Mathematics, proposed university, Tripoli.
[10] -Al-Shahrani S., (2001): The Impact of Using Denis Pieces on Teaching Mathematics in the Fourth and Sixth Primary Schools , published Master Thesis, Saudi Arabia.
[11] Al-Smadi I., (1998): The Effect of Training Students on a Strategy to Solve Mathematical Problems in the Ability to Solve Them, unpublished Master Thesis, Yarmouk University
[12] Bill F., (1986) : Methods of Teaching Mathematics, translated by Muhammad Amin Mamdouh Muhammad Suleiman, Part 1, Edition (1), The Arab House for Publishing and Distribution, Cairo.
[13] Letsing A., (1977): Introduction to Psychology, translation by Adel Ezz Al-Din Al-Ashwal et al., Al-Ahram Commercial Press, Cairo.
[14] Mustafa, K., (2004) : The Effect of Models of Learning Methods on the Achievement of Fourth-Year Students and their Attitudes Towards Mathematics , MA (unpublished), Baghdad.
[15] Jabur O., (1988) : Curriculum and Development of Scientific Thinking , Teacher / Student Journal Vol. (16) No. 1, Onora Press, Beirut.
[16] Treasure, (1979): Educational Psychology, translated by Mowaffaq Al-Hamdani and Hamdi Karbouli, Baghdad University Press.
[17] Zaitoun M., (1986): Methods of Teaching Sciences, 1st Edition, Al-Mashriq Distribution and Publishing, Amman.

Received: 10 Nov 2018 | Revised: 20 Dec 2018 | Accepted: 02 Jan 2019