

THE LEVEL OF UNDERSTANDING OF SCIENCE TEACHERS IN JORDANIAN PUBLIC SCHOOLS THE SCIENTIFIC TERMS

Omar Mwannas Khalaf Al-Bawwat

M.A in Measurement and Evaluation, Ghor al safi post office, South Ghor District, Al Karak, Jordan.

ABSTRACT: *The objective of the current study was to identify the level of understanding of science teachers in the Jordanian government schools for scientific terms. To achieve the objectives of the study, the researcher followed the analytical descriptive approach in terms of applying the study tool, data collection and analysis, The study population may be from all the science teachers in the Southern Ghor District directorate of education The sample of the study was a group of science teachers (40) teachers, The study found that the level of understanding of science teachers in the Jordanian government schools of scientific terms is average. And There are no differences in the level of understanding of science teachers in Jordanian public schools according to gender and experience. There are differences in the level of understanding of science teachers in the Jordanian government schools of scientific terms according to the variable degree, The researcher recommended the need to hold training courses and workshops for science teachers in order to clarify the importance of their knowledge of ancient and modern scientific terminology, and the role of this in improving the educational process of their students.*

KEYWORDS: science teachers, government schools, scientific terms.

INTRODUCTION

All of the world's advanced and developing countries seek to develop their curricula continuously. Science curricula are at the forefront of the development and development of education and planning policies. This is due to the increasing importance of natural sciences in our time, which is characterized by the growth of human knowledge And intellectual and scientific production of mankind, and the associated technical progress has become a feature of this era.

The rapid development of technology and communications has led to the production and exchange of a great deal of knowledge, which has led many educational institutions to organize and organize this knowledge to maximize their utilization in the development of the education process, Learning and continuous development have become a feature of this age.

Societies seek to achieve development and progress by providing the material and technical resources to develop the skills and scientific trends of learners to give them the ability and flexibility to adapt to the changing nature of life. This is reflected in the inclusion of science curricula for science processes and scientific thinking and the use of scientific inquiry in the search for knowledge. (Zoubi, 2009)

Project 2061 is a long-term global vision for the reform and teaching of science curricula, including what all students must know and be able to do in science, mathematics and technology at the end of their graduation.

Science for All Americans (SFAA), Science for All Americans, and its implications for scientific education Benchmarks for Science Literacy (BFSL) and science curricula were among the most important scientific publications and documents. Reform efforts continued and National Science Education Standards (NSES) (2061), documents and publications, all of which emphasized the understanding of the nature of science, scientific endeavor, scientific culture, scientific inquiry, problem solving skills, decision-making capacity, increased population confidence in the value of knowledge, science and technology, With mutual Tha and preserve the environment, Science, Technology, Society and Environment (STSE). (Zeitoun, 2010)

And requires a science teacher to possess scientific knowledge and pedagogical knowledge, especially since this type of knowledge affects his teaching practices, where many educators (Stofflet & Stoddart, 1994; Lin & Chen, 2002) that there are misconceptions and opinions confused by my teacher Science and students on the nature of science, which requires continuous training and change the attitudes of teachers towards the nature of science. (Zeitoun, 2013)

From this point of view, this study came to know the level of understanding of science teachers in the Jordanian government schools of scientific terms from the point of view of the educational supervisor

Problem of the Study

he follow-up of the Jordanian educational reality on the ground indicates the weakness of science teachers in linking the cognitive aspects of the issues of daily life, enabling students to apply the acquired scientific knowledge in solving problems and taking the necessary decisions.

In order to be able to effectively assess the level of understanding of science teachers in Jordanian public schools and to determine their degree of understanding of scientific terms from the point of view of the educational supervisor, the main question of the study can be summarized as follows:

1. What is the level of understanding of science teachers in Jordanian public schools of scientific terminology?
2. Does the level of understanding of science teachers in Jordanian public schools differ according to gender, experience, and degree?

Importance of the study

The importance of this study stems from the fact that it sheds light on one of the topics of global interest, namely the subject of scientific terminology. This study derives its importance from the subject of measuring the level of scientific culture among teachers to the highest level as one of the most important goals of scientific education in light of the recommendations of the 2061 project documents Scientific education and science curricula and teaching, in turn reflected on their students.

Objectives of the study

Based on the above, this study aims specifically at measuring the level of understanding of science teachers in the Jordanian government schools of scientific terms according to the variables of the demographic study.

Limitation of the study

1. Spatial limitation: The study was conducted at the Directorate of Education of the Southern Lagoon Brigade.
2. Time limitation: The study was conducted in the second semester of the academic year (2017/2018)
3. Human limitation: The application of the study was limited to a sample of (40) teachers of science in the Directorate of Education of the Southern Lagoon Brigade.

Terminology of study

Scientific terminology: A group of words that have been agreed upon by all researchers to perform the function of translating the results of the research into a linguistic template that ensures effective and useful communication among the various categories of users. (Zeitoun, 2013)

Science teacher: Every qualified person appointed by the Ministry of Education to teach science subjects in Jordanian public schools for primary and secondary levels (grades 1 to 2). (Aliwa and Saberini, 2017)

Educational Supervisor: is the person who occupies the post of supervisor and supervises the educational process and promotes the teaching and learning process, which is the coordinator and the engine, which is directed towards the growth of the school staff in a direction that they can move the educational process forward. (Zeitoun, 2010)

Theoretical Literature of the Study:

At present, the teaching of science is of great and continuous interest to keep abreast of the scientific and technical progress and the explosion of scientific knowledge. This interest derives its origins from the nature of science and its processes because our age is the era of scientific and technological progress and knowledge explosion. Each branch of knowledge has its own special character, distinguished from other branches of human knowledge. This nature includes the structural structure of this branch, its methods, processes, and methods of research and thought. They have the ability to think scientifically, they have positive tendencies and attitudes, and since the teacher is the basic component of the educational process, it is therefore necessary to pay attention to it constantly, and to know the extent of its understanding of the nature of scientific terms, which reflects positively on the abilities of learners, and employment In teaching to achieve the objectives of teaching science in a comprehensive manner. (Abu Jahjough, 2013)

The importance of understanding the scientific terms in teaching science:

The understanding of the nature of scientific terms of the most important qualities of the individual educated scientifically and practically; it helps the individual to understand the

environment and to solve their problems and dealing with devices traded in life in a manner appropriate to the era of science and technology, the scientific terms have a significant impact on the content of the curriculum and the organization of curriculum expertise. The understanding of the teacher to the nature of scientific terminology helps him to build new teaching strategies and affect the quality of questions that he directs to his students. This understanding of the science teachers of the nature of scientific terms is a necessary thing to be able to give their students a thorough understanding of the scientific content. (Olive, 2002) Therefore, the basis of understanding the nature of science education emphasizes the development of scientific culture, as the entrance to teaching science education should be done through education through science, not science through education, this includes understanding the nature of scientific terms and development of intelligence and communication skills and positive trends, And the understanding of the nature of scientific terms as an important element for the achievement of citizenship and the development of scientific and technological culture. (Holbrook & Rannikmae, 2007)

According to Galbraith (1997), a scientifically educated individual should have knowledge of the facts, terminology, principles and scientific theories in science, apply them to daily life situations, take advantage of scientific inquiry processes, understand general ideas of the characteristics of science and the importance of interaction between science, technology and society, And knowledge of scientific trends and trends.

Al-Khalili and Wahid Yunis (1996) argue that the educated person in scientific terms is capable of acquiring a fundamental knowledge base in science, a comprehensive understanding of the nature of science and an appropriate knowledge background on the nature of the relationship between science, technology and society. Knowledge of the determinants of science and the use of appropriate knowledge in making daily decisions.

According to the Science Culture Document (NAS, 1995), culture expresses the products (or products) of science teaching, covering the content of (science, mathematics, technology, biology, and common themes) Here are the habits of the mind, the causes of the occurrence of things, an expanded understanding of ideas and values in the context of historical dimensions, human society, and physical location (thus focusing on knowledge acquisition in five areas: science, biology and earth sciences, Some of the branches identified as Fizia Microbiology, as standardized concepts or common themes include scientific ideas such as laws of Newton in the power and movement, and the atomic structure of the material linking these traditional branches. If the fields indicate what things are, other characteristics indicate how these things are handled. Application of knowledge leads to creativity by students. Content also provides important contexts for teaching and learning science, in other words, why things happen. Scientific culture places science in the context of history, society and individual decisions.

The development of education towards the knowledge economy emphasizes the understanding of the nature of science and the scientific inquiry of teachers and students. The new curriculum also includes some controversial scientific issues which the science teacher must understand to convey to his students clearly. (Zoubi, 2009)

Scientific developments have produced a great deal of knowledge, which is permeated by some scientific terminology, and has been interested in including some of these scientific terms dialectic in the curricula of science, and to deal with the issues and terminology of scientific dialectic and explain wisely to students, the science teacher must have specific scientific trends

to show his behavior, A good teacher helps students understand that debate is the lifeline of democracy. (Shapiro, 2011)

As a result, scientific trends have become the focus of the science curriculum. The general framework of the science curriculum developed under the Education for Knowledge Economy Development Project (ERFKE) has been emphasized. (Olive, 2007) The project (2061) is concerned with scientific skills, values and trends, because it is directly related to the view of the nature of science, scientific terminology, and ways of learning and thinking (AAAS, 1993)

Method and procedures

1. The population of the current study consists of the science teachers in the Ministry of Education of Jordan belonging to the Southern Ghor District directorate of education (68) teachers of the primary and secondary stage.

The sample of the study consisted of (34) teachers out of (35) questionnaire distributed to (18) secondary and basic schools belonging to the Southern Ghor District directorate of education. Table (1) shows the characteristics of the study sample

Table (1) Characteristics of the Study Sample

variable		Frequency	percentage
Gender	mail	20	%50
	female	20	%50
Experience	Less than 5 years	15	%37.5
	More than 5 years	25	%62.5
Degree	BA	30	%75
	Postgraduate	10	%25
total		40	100%

2. Study Tool:

The researcher prepared one main research tool which is a questionnaire consisting of (15) paragraphs to measure the level of understanding of science teachers in Jordanian public schools of scientific terms.

3. Statistical treatment:

The data of this study were processed according to the following methods:

1. Use the Chronbach's Alpha parameter to determine the stability of the tool.
2. Mathematical averages and standard deviations.
3. T-test to examine differences between independent samples.

4. Reliability of the Study Tool:

The researcher applied the tool on a survey sample of the study population of (15) teacher to calculate the Reliability of the study tool through the equation of the consistency of internal

consistency (Split – half) and corrected by the equation of Spearman Brown, and the following table indicates the value of stability and corrected stability value.

The reliability coefficient was (0.83) in this study, while the corrected reliability coefficient (0.90) was acceptable in this type of humanitarian studies. See Table (1).

Table (1) The study tool reliability coefficient

Corrected reliability coefficient	Split – half reliability coefficient
0.90	0.83

$$\text{Corrected reliability equation} = \frac{2 \times \text{split – half reliability coefficient}}{1 + \text{split – half reliability coefficient}}$$

Analysis of data and answering the study questions:

Question 1: What is the level of understanding of science teachers in Jordanian public schools of scientific terminology?

To answer this question, the researcher calculated the overall mean of the responses of the sample of the study sample which reached (2.68) and compared it with the criterion derived from the comparison. The result was that the level of understanding of the science teachers in the Jordanian governmental schools of scientific terms is within the intermediate level. The researcher explains this result: that the science teachers in the Southern Ghor District directorate of education do not show any interest to teach the practical terms of the students for several reasons, including the length of the curriculum and the inadequacy of the study, the accumulation of burdens on the teacher because of the increase of the quorum weekly quota, which does not allow him The field to search for new scientific terms and teach them to students.

Table (2): Comparison of the responses of the sample members

Range	Verbal appreciation
1 – 1.99	Low
2 – 2.99	Average
3 – 3.99	high

Question 2: Does the level of understanding of science teachers in Jordanian public schools differ according to gender, experience, and degree?

To answer this question, the researcher used the T test to examine the differences between the samples and the following table shows that:

Table (3) Test (T) to examine differences between samples

Verbal		means	T	sig	df	Significance		
Gender	mail	42.56	1.79	0.17	28	There is no difference		
	female	41.88						
Experience	Less than 5 years	43.2	1.45	0.23		28	There is no difference	
	More than 5 years	44.1						
Degree	BA	41.25	4.87	0.000			28	There is difference
	Postgraduate	46.87						

By looking at the previous table, we find that there are no differences in the level of understanding of science teachers in Jordanian public schools of scientific terms according to both sex variable and experience. The value of sig is greater than the value of ($\alpha = 0.05$), (42.56) for males and (41.88) for females confirms the previous result. The difference is small and non-significant statistically. The difference in experience is also the mean of those who have less than five years of experience (43.2) For teachers with more than five years' experience (44.1), they are non-D teams As for the variable of degree, we note that there is a statistically significant difference in the level of understanding of science teachers in Jordanian public schools of scientific terms. The value of sig (0.000) was less than the ($\alpha = 0.05$) level, And acceptance of alternative, and the difference in the arithmetic average was clear and statistically significant. The science teachers who completed their higher studies received an average of (46.87), while the teachers who received the bachelor degree received (41.25).

RESULTS

1. The level of understanding of science teachers in Jordanian public schools of scientific terminology is average.
2. There are no differences in the level of understanding of science teachers in the Jordanian government schools of scientific terms depending on each gender variable and experience.
- 3 - There are differences in the level of understanding of science teachers in Jordanian government schools of scientific terms depending on the variable degree.

RECOMMENDATIONS

1. Holding training courses and workshops for science teachers to clarify the importance of their knowledge of ancient and modern scientific terminology, and the role of this in improving the educational process of their students.
2. Encourage teachers to attend seminars and scientific lectures that increase their scientific inventory in relation to modern scientific developments.
3. Provide support to science teachers who wish to complete their higher studies such as higher diploma, master's or doctorate, because of their great role in raising the awareness of science teachers of scientific terms.

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