

# The Obstacles to Science Teachers' Use of Science Laboratories in the Southern Shouneh District from Their Point of View

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## Abstract

This study aimed to identify the obstacles, the science teachers' use of scientific laboratories in the Southern Shouneh district from their point of view. The study sample consisted of (75) male and female teachers. To collect data, a questionnaire was developed to identify the obstacles that science teachers use of the scientific laboratories in the Southern Shouneh district from their point of view. Its validity and reliability were confirmed, and the study concluded that the obstacles came to a medium degree in the field of devices and equipment, students, science teacher, and school laboratory. For the postgraduate category.

**Keywords:** Obstacles, Science lab.

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## INTRODUCTION

The educational field has developed at the present time and at all local and international levels, in order to keep pace with scientific and technological progress. This development comes from the optimal use of different learning resources in the educational process. Therefore, the use of modern science laboratories in the educational field is concerned with educational techniques in teaching science, because of their From a great role in translating knowledge, ideas and theories into students' practice in school. In the modern educational system, the role of the teacher is not just a transmitter and a source of information. Rather, his role becomes a leader and a guide to the learning process. He is the one who plans education, organizes its sources in a more effective and efficient manner, leads learners to achieve the intended goals, and controls the educational situation until the teaching objectives are fully achieved. He is keen to implement more than one sense in the students' cognition process so that the learning process is clearer and more focused in the learner's thought, so his learning of the learned material will be more compared to his learning using one sense (Zaytoon, 2013).

Activating the practical laboratory activity contributes to achieving many of the objectives of practical education, such as understanding the nature of science and scientific knowledge, and increasing the students' motivation to learn, which led to an increase in the interest of various institutions in the importance of teacher preparation, as well as to an increase in calls for making education a profession as the appropriate basis for reform. Education and its development, and the truth of this is through the development and modernization of teacher preparation programs, to keep pace with recent developments in teacher preparation systems and scientific developments that confirm the necessity of preparing a quality of learners who have the ability to learn for life, and developing their knowledge research that invests the energies and capabilities available to the teacher, and prepares them so that They can find competent national cadres (Zaytoon, 2004).

Experts in the educational field believe that the theoretical information in the field of earth and environmental sciences in the basic upper and secondary stages needs to be translated into a concrete reality, and to clarify theoretical concepts in it. It is the place in which the student completes his assimilation of theoretical information, in which it is easy for the teacher to explain his lessons, and these goals are only achieved by employing the school science laboratory in general in an appropriate and sufficient manner, through achieving the goals of the school science laboratory, which are: Encouraging observation and accurate description to make phenomena Connected to reality, stimulating and strengthening the way of logical thinking, searching for ways to solve problems, arriving at facts and new principles. When laboratory work is well planned and effectively implemented, the science laboratory will achieve its objectives in a way that cannot be obtained from any other educational experience (Score, 2009).

In view of the close link between science research in general and Earth and environmental sciences in particular with practical and experimental activity, and the fact that the school laboratory is one of the most prominent areas that help transform the abstract into tangible, this study came to identify the obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view.

## STUDY PROBLEM AND QUESTIONS:

In view of the active role played by the science laboratory in enhancing scientific concepts and skills, acquiring scientific investigation skills, scientific methods in implementing scientific experiments, and creating opportunities for revealing creativity and innovation among school students, and the fact that the researcher works as a science teacher in the Southern Shouneh District, she noticed that there are shortcomings In the use of

school laboratories in teaching science, the researcher identified the problem of the study in revealing the obstacles that science teachers use of science laboratories in the Southern Shouneh District from their point of view. This study attempts to answer the following two questions:

1. What are the obstacles to science teachers' use of science laboratories in the Southern Shouneh district from their point of view?
2. Are there statistically significant differences at the significance level ( $\alpha = 0.05$ ) between the responses of the study sample members in their estimation of the obstacles to science teachers' use of scientific laboratories according to the variables of gender and academic qualification ?

#### **PURPOSE OF THE STUDY:**

The study aimed to identify the obstacles of science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view, and to reveal statistically significant differences at the significance level ( $\alpha = 0.05$ ) between the responses of the study sample members in their assessment of the obstacles to science teachers' use of scientific laboratories according to the variables of gender, qualification scientific.

#### **THE IMPORTANCE OF STUDYING**

This study derives its importance by addressing the issue of obstacles to science teachers' use of scientific laboratories. The importance of the study can be determined by the following points:

1. This study comes in response to the modern educational trends that call for the necessity of focusing on educational laboratories, and providing all the material and moral capabilities that enable the student to research and explore and probe the depths of science by himself to reach the truth.
2. The study gains importance by revealing the obstacles to science teachers' use of scientific laboratories and identifying the most important difficulties that reduce the conduct of practical experiments dedicated to the science course, which may lead to limiting the impact of these obstacles.
3. The researcher hopes that the results of the study will provide the Ministry of Education and the planning authorities with field information on the reality of obstacles to the use of the laboratory in teaching, which may be useful in preparing training programs for in-service teachers in improving the level of using the laboratory in teaching science.

#### **TERMINOLOGY OF STUDY**

**-OBSTACLES:** Al-JundiWalal (1994:35) know them, "they are hard-to-overcome obstacles that stand between the individual and his goal that he wants to achieve".

The researcher defines procedural obstacles as: the difficulties that prevent science teachers from using the laboratory, measured by the degree that the teacher obtains on the paragraphs of the questionnaire related to identifying the obstacles to the use of obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view.

**-SCIENCE LAB:** It is "a special place where devices and tools are available and the opportunity is prepared to conduct scientific experiments in order to achieve limited practical goals, and the students themselves carry out the experiments" (Al-Nashef, 2004: 96).

The researcher defines a procedural science laboratory as: the place designated in schools for conducting experiments and practical demonstrations, and where the necessary devices and tools are available to carry out activities.

#### **THE LIMITS OF THE STUDY:**

The study was limited to the following limits:

- 1, Human Frontiers: Science Teachers in the Southern Shouneh District.
- 2, Spatial boundaries: the Education Directorate of the Southern Shouneh Brigade.
- 3, Temporal limits: the academic year 2021/2022..

#### **STUDY LIMITATIONS:**

The results of the study were determined by the degree of validity and reliability of the tool used to collect data, the accuracy of the sample members' answers to the paragraphs of the tool, and their objectivity, and that the results of the study can only be generalized to the community from which the sample was drawn, and other similar communities.

#### **THEORETICAL LITERATURE**

The theoretical literature included the most important topics related to the subject of the study.

The laboratory represents an important part of the science learning process in general. It is of great importance in achieving educational goals, as it helps to form scientific skills and take care of the applied aspects in the school, and therefore the laboratory is one of the basics of the educational process, especially in the secondary stage, and it facilitates for students to learn, and teachers should link the theoretical side of the scientific material with the applied side, and those interested in scientific education are given Great interest in teaching science in laboratories because of its advantages over teaching science in regular classrooms.

Science laboratories have an effective role in creating opportunities for discovering creativity and innovation in the student, so it is necessary to focus on the practical side and the accompanying activities, which will provide

the student with the basic science processes (understanding, control, prediction, and accustom him to discovery, experimentation and investigation (Al-Ghamdi). The laboratory plays an important role in the educational process, as it is the place that provides the student with the opportunity to learn and experiment, follow the method of scientific thinking, and train in the scientific method of research and thinking, which helps him to retain the educational material for a longer period, thanks to the laboratories' provision of Various and varied equipment and techniques (Khalif, 2010).

#### **DEFINITION OF A SCHOOL LABORATORY:**

The laboratory is a well-equipped place in which scientific experiments or medical analyzes are conducted. Zaytoun (2008) defines the laboratory as "the place where the active interaction between ideas and experiments takes place. It is a pattern of thinking and performance in which planning, reasoning, interpretation, and problem solving interact with manual work, observations and some laboratory activities".

Khalif (2010) defines the school laboratory as "a site for education in which basic principles work that are simple, exciting, and enjoyable, and aim at developing correct behavioral tendencies.

#### **IMPORTANCE OF THE SCHOOL LABORATORY:**

The laboratory is of great importance in the educational process, as it is the place where students are acquired scientific skills and trained to use tools and devices, deal with chemicals and follow safety rules in the laboratory. Zeitoun (2008) believes that the laboratory is an integral part of scientific education and science teaching, and it is the beating heart of science studies in the different stages of education. For this reason, modern trends in scientific education attach great importance to the school laboratory and the accompanying scientific activities, as the laboratory is closely linked to the methodological scientific materials that It is meant to be accompanied by practical activities on the one hand and the achievement of science teaching objectives on the other.

Shaheen and Hattab (2005) stress the importance of the laboratory in the present era and its role in transforming abstractions into constants and raising the level of expertise of both the teacher and the learner, and its connection to the educational process and modern science curricula, and what it can achieve by providing diverse sensory experiences that can be relied upon in understanding a lot. From facts and information, in addition to its role in acquiring skills, forming scientific trends, achieving the goals of teaching science, and giving realism to many theoretical information, which consolidates information in the minds of students, and leads to an understanding of the nature of science.

The importance of the laboratory in teaching science in several aspects, the most important of which are:

1. Working in the laboratory helps to understand the nature of science and the importance of experimentation.
2. The use of the senses while working in the laboratory, and the opportunity for direct sensory experience.
3. Adding realism to some of the theoretical information and ideas that the student learns.
4. Training on how to overcome the scientific difficulties required to work in the laboratory.
5. Training students on how to use the main devices and how to maintain and care for them, and to identify their design and installation.
6. Training the students on the precautions that must be followed during the experiment to obtain accurate results.
7. Observe safety and security rules during practical experimentation, and be careful while using some materials and devices.
8. Accustom students to some good habits such as arranging, organizing and returning things to their places after using them.
9. Develop the ability to direct accurate observation and record results and observations in a scientific way.
10. Develop students' logical thinking to reach appropriate results from observations and information obtained during the experiment (Shaheen and Hattab, 2005).

#### **OBJECTIVES OF THE SCHOOL LABORATORY:**

One of the objectives of the school laboratory is to prove the validity of information and scientific knowledge in its forms that the student learned earlier, and to provide him with the opportunity to apply scientific concepts he had previously learned in new situations, including:

- Training students to clean practical devices and tools.
- Training students on how to use different measurements.

Training students to write reports by watching the experiment.

Training students to make and interpret graphs (Al-Ayouni, 2001).-

The laboratory plays an important role in teaching science, and provides a learning environment in different ways through traditional teaching, because the laboratory environment enhances scientific curiosity, creativity and encourages the spirit of curiosity among students, and the laboratory is an attractive environment for all students, and the student can work in it Individually or in small groups, where he develops scientific thinking skills represented in observation, collection and interpretation of data and tools, in order to build his own interpretation around a scientific phenomenon.

### **OBSTACLES OF USING THE SCIENCE LAB:**

There are a number of obstacles that science teachers face in using the school laboratory, as follows:

1. Obstacles related to students, such as: the large number of students in one class, and the difficulty of controlling students in the laboratory hall.
2. Obstacles related to teachers, such as: the large number of lessons that the science teacher teaches per week, the teacher's lack of adequate preparation for conducting laboratory experiments, and the weak tendencies and attitudes of the teacher towards laboratory work.
3. Obstacles related to laboratory values, such as: lack of laboratory values for the preparation and preparation of activities and laboratory experiments, and weak cooperation between the science teacher and laboratory values regarding prior preparation of experiments.
4. Obstacles related to materials and devices such as lack of laboratory tools and devices in the laboratory, availability of public safety tools, and lack of necessary extensions (Zaytoun, 2013).

### **PREVIOUS STUDIES:**

Al-Ghuwari and Al-Shara (2017) conducted a study aimed at identifying the reality of science teachers' implementation of scientific experiments for gifted students in gifted schools in Jordan. The study sample consisted of (13) science teachers from gifted schools in Jordan in the 2015 academic year / 2016, the researcher used the qualitative approach, and the study tool consisted of a note card to investigate the reality of the implementation of scientific experiments in the ranks of the gifted.

Especially when carrying out scientific experiments, giving the gifted the opportunity to discuss real problems and their relationship to scientific concepts, and developing training programs and in-service workshops to improve science teachers' abilities to implement scientific experiments.

Al-Harbi (2017) conducted a study aimed at identifying the degree of availability of safety means in school laboratories for science courses in the elementary stages from the point of view of teachers in the city of Buraidah. ) is a male and female teacher in primary schools in the city of Buraidah, while the study sample amounted to 193 (teachers), and the results indicated that the standards that must be met in school laboratories to provide safety means are widely available. It also indicated that there are no statistically significant differences in the degree of availability of safety means in school laboratories for the science course in the primary stage from the point of view of teachers in the city of Buraidah due to qualification, as well as the experience variable.

Ndigokubwayo (2017) conducted a study aimed at revealing the reality and obstacles of science laboratory activities in teacher training colleges in Rwanda. One of the teacher training colleges, and one of the most important results of the study was that teachers face a shortage in laboratory materials and equipment, and in the expertise necessary to conduct experiments. As a result, teachers with greater experience should conduct training courses and workshops for less experienced teachers, who face Difficulties related to the activation of laboratory activities.

And conducted by Daba and Anbesaw (Daba&Anbesaw, 2016) aimed at revealing the factors affecting the application of practical activities in teaching science in schools in the Afar region in southern Ethiopia. Afar schools, and one of the most important results of the study was that there is a large percentage of teachers who do not use practical activities in teaching science, and there is also a lack of laboratory equipment, in addition to the lack of interest of the local government and school management in the weak motivation of students for practical activity resulting from these obstacles.

And both Alemayehu and Zengele (Alemayehu&Zengele, 2016) conducted a study aimed at evaluating the reality of science laboratories activities in the state of Walita in southern Ethiopia. , and students in secondary schools in Walita state in southern Ethiopia, while the study sample consisted of (114) teachers and laboratory values (10) and school principals and (235) students. In addition to the lack of a qualified cadre of laboratory valuers.

Abu Sammak (2015) conducted a study aimed at identifying the problems facing scientific laboratory values in secondary schools in Gaza governorates and ways to reduce them. (142) Laboratory values, and the entire study population was taken as a sample for the study, and to achieve the objectives of the study, the researcher used the descriptive analytical method, and the questionnaire as a study tool. scientific, and calculating part of the student's final grades for conducting experiments and activities in the scientific subject.

### **COMMENTING ON PREVIOUS STUDIES:**

The current study is similar to most of the previous studies that aim to address the issue of obstacles, problems and difficulties that science teachers face when they use the laboratory. The researcher benefited by reviewing these studies in the theoretical framework, the methodology used, the development of the study tool and the discussion of the results. The current study was distinguished from previous studies in that it was one of the few studies in Jordan - as far as the researcher knew - that dealt with an important topic that most science teachers suffer from in government schools in Jordan, and it keeps pace with the reality we live in as a result of the Corona pandemic, which is the obstacles to science teachers' use of scientific laboratories in the Shouna District. the south from their point of view. We also note that the previous studies differed in terms of purpose, some of

which dealt with assessing the reality of science laboratories activities, such as the study of Alemayehu&Zengele (2016), and others that dealt with the factors affecting the application of practical activities in science education, such as the study of Daba&Anbesaw (2016).

**METHOD AND PROCEDURES:**

This part included a description of the research method used, the study population and its sample, the study tool, its validity and reliability, the statistical treatment and the study application procedures.

**RESEARCH METHOD USED:**

The descriptive approach was used in this study, due to its relevance to the nature of the study, and the questionnaire was used as a means of collecting data from the study sample members..

**STUDY COMMUNITY:**

The study population consisted of (77) science teachers in public schools in Southern Shouneh for the year 2022/2023.

**THE STUDY SAMPLE:**

The study population sample was obtained from science teachers. The study sample consisted of (75) male and female teachers studying science in the Southern Shouneh District, distributed by gender and educational qualification, and table (1) shows the distribution of the study sample according to the variables of gender and educational qualification as follows:

**TABLE (1):DISTRIBUTION OF THE SAMPLE OF MALE AND FEMALE SCIENCE TEACHERS IN THE SOUTHERN SHOENEH DISTRICT BY GENDER AND ACADEMIC QUALIFICATION.**

Variable	Categories	Frequency	Percentage
Gender	Male	32	43%
	Female	43	57%
Qualifications	Bachelor's degree	65	87%
	Postgraduate	10	13%
	Total	75	100%

**STUDY TOOL:** The researcher developed the current study tool, which is a questionnaire, after reviewing the educational literature and related studies, such as the study of Abu Al-Asmak (2015).

**TABLE NO.(1)**

Sequence	fields of resolution	Number of paragraphs
1	Laboratory equipment and instruments	6
2	Students	5
3	science teacher	6
4	school laboratory	7
	Total paragraphs of the questionnaire	24

**VALIDITY OF THE TOOL:** The study tool in its initial form consisted of (28) items, which were presented to (10) arbitrators, and structural and linguistic modifications were made based on the referees' observations, so that the tool became in its final form of (24) items.

**THE STABILITY OF THE TOOL:** To verify the stability of the tool, the questionnaire was applied to a sample of (10) teachers, from outside the study sample, by giving them sequential numbers from (1-10), and after three weeks the questionnaire was applied to the same sample, with the same numbers that given the first time, then the Pearson coefficient was calculated between the relationship obtained in the two times.

**TABLE NO. (2): CRONBACH'S ALPHA COEFFICIENT VALUES FOR INSTRUMENT FIELDS**

Dimension	stability coefficient
Laboratory equipment and instruments	.89
Students	.82
Science teacher	.87
School laboratory	.91

**STUDY VARIABLES:**

The study included the following variables:

Independent variables: Perceptions of the study sample about the obstacles to science teachers' use of science laboratories in the Southern Shouneh District from their point of view.

Median independent variables: The study included the following median variables.

A- Gender has two categories: male and female

B - Academic qualification: It has two levels (Bachelor's, Postgraduate)

Dependent variables: The study included one dependent variable, which is the obstacles of science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view.

**STATISTICAL PROCESSING:**

To answer the first question: Arithmetic means and standard deviations were extracted.

To answer the second question: t-test analysis and One Way Anova were used to extract differences.

The following is a presentation of the results of the current study by answering its questions, as follow:

First: The results related to the first question, which states: What are the obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view?

To answer this question, the arithmetic means and standard deviations were calculated and the rank was determined.

**TABLE NO. (3)**

Field number	Dimension	Arithmetic Mean	Standard Deviation	Rank	Score
1	Laboratory equipment and instruments	2.6	.,59	1	Medium
2	Students	2.8	.,64	2	Weak
3	Science Teacher	2.,5	.,69	3	Medium
4	School Laboratory	2.,1	.,71	4	Weak
5	Overall score for the dimensions as a whole	1.,8	.,85		Weak

It was found from the results of Table (3) that the obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District, from their point of view, are weak; With an arithmetic mean (1.80) and a standard deviation (.58), it came after laboratory devices and tools in the first place with an arithmetic mean (2.60) and a standard deviation (0.59) with a medium degree, and after the students came in the second place with an arithmetic mean (2 , 08), standard deviation (60.), and a weak degree.

The following is an explanation of each of the previous dimensions:

**FIRST: LABORATORY EQUIPMENT AND TOOLS**

To answer the paragraphs related to this field, the arithmetic means and standard deviations were calculated ,and Table (4) shows this.

**TABLE NO. (4)**

Paragraph number	Paragraphs	Arithmetic Mean	Standard deviation	Rank	Score
2	Insufficient financial resources to fund practical experiments	2,70	,70	1	Medium
1	Practical experiences need a long time in preparation and preparation	2,50	,87	2	Weak
3	Lack of tools for conducting practical applications in the laboratory	2,49	,89	3	Weak
4	Weak lighting in the laboratory hall	1,47	,90	4	Weak
6	Some chemicals expired	1,44	,92	5	Weak
5	Failure to maintain laboratory equipment and tools periodically	1,42	,93	6	Weak
7	Dimension as a whole	1,90	,572		Weak

Table (4) shows that the paragraphs of laboratory equipment and tools as a whole had a weak average with an arithmetic average (1.90), and the paragraph (insufficient financial resources to fund practical experiments) came in the first place, because school administrations, through their budget, sought to provide most materials and equipment for laboratories and allocate Part of its finances for laboratories, and the paragraph (non-maintenance of laboratory equipment and tools periodically) came last, and the researcher attributed this to the lack of support and control by the Ministry and the Directorate over laboratories through inspection visits.

**The second dimension : The students**

To answer the paragraphs related to this field, the arithmetic means and standard deviations were calculated.

**TABLE NO. (5)**

Paragraph Number	Paragraphs	Arithmetic Mean	Standard deviation	Rank	Score
8	Students' lack of interest in practical applications because they are not subject to evaluation in exams	3,34	1,26	1	Medium
11	Students' lack of attention to safety and security precautions while conducting practical experiments	3,33	1,28	2	Medium
7	Lack of students' understanding of the requirements and conduct of experiments and practical applications	3,31	1,29	3	Medium
9	Too many students in a class	3,21	1,30	4	Medium
10	Students' lack of self-discipline in the laboratory	3,20	1,31	5	Medium
12	Dimension as a whole	3,20	1,12		Medium

Table (5) shows that the paragraphs after the students as a whole averaged a moderate degree with an arithmetic average (3.20), and the paragraph (students' lack of interest in practical applications because they are not subject to evaluation in exams) came first, and it indicates that science teachers did not take the aspect of practical experiments and their application Part of the monthly evaluation of students and its approval in their grades record, and not focusing on the total attendance of students in the laboratory. The paragraph (students' lack of self-discipline inside the laboratory) came last in the laboratory, due to the organizational shape of the laboratory and the presence of chairs in circular motions around the tables that help students sit and limit their movement.

**THE THIRD DIMENSION: THE SCIENCE TEACHER**

To answer the paragraphs related to this field, the arithmetic means and standard deviations were calculated.

**TABLE NO. (6)**

Paragraph Number	Paragraphs	Arithmetic Mean	Standard deviation	Rank	Score
16	The lack of incentives for the science teacher to encourage him to conduct experiments	3,34	1,26	1	Medium
13	The science teacher's lack of knowledge of the operation and maintenance of laboratory equipment in the laboratory	3,33	1,28	2	Medium
11	Increasing the science teacher's classes	3,31	1,29	3	Medium
12	The teacher's belief that some topics in science courses do not need experiments and practical applications	3,21	1,30	4	Medium
14	Weak tendencies and attitudes of science teachers towards laboratory work	3,20	1,31	5	Medium
15	The lack of adequate training for the teacher during the service on modern methods of using the laboratory	3,19	1,32	5	Weak
17	Dimension as a whole	3,23	1,16		Medium

It is evident from Table (6) that the paragraphs after the science teacher as a whole had their averages in a medium degree with an arithmetic average (3.23), and the paragraph (the lack of incentives for the science teacher to encourage him to conduct experiments) came first because there was no material incentive for the science teacher due to his extra work inside the school laboratory . The paragraph (the lack of adequate training for the teacher during the service on modern methods of using the laboratory) came last in the matter of the availability of laboratory values that provide assistance and advice to the science teacher inside the laboratory from preparing materials and conducting experiments.

**THE FOURTH DIMENSION: THE SCHOOL LABORATORY**

To answer the paragraphs related to this field, the arithmetic means and standard deviations were calculated.

**TABLE NO. (7)**

Paragraph Number	Paragraphs	Arithmetic Mean	Standard deviation	Rank	Score
19	The arrangement of benches and tables inside the laboratory is not appropriate to the nature of chemical activities and experiments	3,34	1,26	1	Medium
23	Lab benches are not easy to move and flexible enough	3,33	1,28	2	Medium
21	Lack of adequate and continuous ventilation of the laboratory	3,31	1,29	3	Medium
17	Lack of necessary supplies of water, electricity and heat sources in the laboratory	3,21	1,30	4	Medium
18	Limited space in the school laboratory hall	3,20	1,31	5	Medium
19	The arrangement of benches and tables inside the laboratory is not appropriate to the nature of chemical activities and experiments	3,19	1,31	6	Weak
20	Lack of security and safety means in the laboratory (fire extinguishers, first aid kit)	3,17	1,36	7	Weak
22	Dimension as a whole	3,25	1,17		Medium

Table (7) shows that the paragraphs after the school laboratory as a whole have averaged averages with an arithmetic mean (3.25), and the paragraph (the arrangement of seats and tables inside the laboratory does not correspond to the nature of chemical activities and experiments) came first. The researcher attributes this to the engineering design of the laboratory, which limits Freedom to experiment. The paragraph (lack of security and safety means in the laboratory (fire extinguishers, first aid kit)) ranked last, due to the absence of a clear item in the school budget for the maintenance of the science laboratory in the school.

5. Second: Are there statistically significant differences at the significance level ( $\alpha = 0.05$ ) between the responses of the study sample members in their estimation of the obstacles to science teachers' use of scientific laboratories according to the variables of gender and academic qualification?

6. To answer this question, the arithmetic averages and standard deviations were calculated, and a binary variance analysis was conducted in the responses of the study sample members in their assessment of the obstacles to science teachers' use of scientific laboratories according to the variables of gender and academic qualification?

**ACCORDING TO THE VARIABLE NAMED GENDER:**

Arithmetic averages and standard deviations were calculated, and the "T" test was extracted for independent samples of the answers of the same individuals to the obstacles of science teachers' use of scientific laboratories according to gender variables, and Table (8) illustrates this.

**TABLE NO. (8)**

Field	Gender	Number	Arithmetic Mean	Standard deviation	Value "T"	level indication
Laboratory equipment and tools	Male	32	1.93	.60	.,078	1.83
	Female	43	1.92	.52		
Students	Male	32	2.11	.61	.266	.722
	Female	43	2.9	.61		
Science teacher	Male	32	2.65	.59	.378	.964
	Female	43	2.67	.56		
	Female	32	2.07	.46		
School lab	Male		1.99	.53	.078	.185

The results in Table (8) indicate that there are no statistically significant differences at the significance level ( $\alpha = 0.05$ ) for obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view? According to the gender variable, the researcher attributed that reason for the absence of statistically significant differences to the existence of evidence of scientific experiments in the hands of science teachers that identifies the required tasks and the methods used to prepare the experiments, and they also attributed this to the lack of training and interest in activating the school laboratory by science teachers.

**ACCORDING TO THE EDUCATIONAL QUALIFICATION VARIABLE:**

The arithmetic means and standard deviations of the obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District were calculated from their point of view. According to the educational qualification variable, and table (9) shows this.



**TABLE NO. (9)**

Field	Qualification	Number	Arithmetic Mean	Standard deviation
Laboratory equipment and tools	BA	34	1.79	.61
	Postgraduate	12	2.25	.72
Students	BA	18	2.13	.56
	Postgraduate	34	1.88	.61
Science teacher	BA	18	2.72	.49
	Postgraduate	12	2.62	.48
School lab	BA	34	1.83	.59
	Postgraduate	12	2.27	.67

The results in Table (9) indicate that there are apparent differences between the arithmetic averages of the obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view, According to the educational qualification variable according to the educational qualification variable, as the owners of the category (postgraduate studies) got the total score on the highest arithmetic mean of (2.27) and to determine whether the differences between the averages were statistically significant at the level ( $\alpha = 0.05$ ) a one-way analysis of variance was applied and came The results of the analysis of variance are as shown in Table (10).

The results of the arithmetic one-way analysis of variance test for estimates of the obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view according to the educational qualification variable.

**TABLE NO.( 10).**

The dimension	Contrast source	Sum of squares	Degrees of freedom	Mean squares	The calculated 'F' value	Indication level
Equipment and tools	between groups	2.079	3	.693	2.197	.093
	within groups	30.281	96	.315		
	Total	32.360	99			
Students	between groups	3.160	3	1.053	2.975	.075
	within groups	33.988	96	.354		
	Total	37.147	99			
Science teacher	between groups	1.319	3	.440	1.329	.269
	within groups	31.741	96	.331		
	within groups	25.891	96	.270		
	Total	27.910	99			
School Lab	between groups	2.015	3	.672	2.440	.069
	within groups	26.423	96	.275		
	Total	28.438	99			

The results in Table (11) showed that there were no statistically significant differences at the level ( $\alpha = 0.05$ ) in the degrees of science teachers' estimations of the degree of obstacles to science teachers' use of scientific laboratories in the Southern Shouneh District from their point of view depending on the educational qualification variable, and the reason may be due to the fact that the tasks The duties required of science teachers are traditional and depend mainly on the use of a manual for conducting experiments for each age stage, and science teachers are limited to applying what is required within the prescribed curriculum.

**RECOMMENDATIONS:**

1. Training science teachers to use modern methods to activate work in the school laboratory..1
2. Providing and updating the devices, tools and materials necessary for conducting experiments in the sciences, in addition to training science teachers to exploit the local environmental resources and their raw materials in the production of educational aids.
3. Working to increase training and development courses for science teachers and laboratory evaluators in using the science laboratory, in addition to exchanging and transferring experiences from teachers with more years of service to teachers with less years of service.

**REFERENCES**

- Alemayehu, B. &Zengele, A. (2016). The Status of Secondary School Science Laboratory Activities for Quality Education in Case of Wolaita Zone, Southern Ethiopia, *Journal of Education and Practice*, 7(31), 1-11

-Abu Sammak, Abdul Majeed Ali (2015). *Problems facing the values of scientific laboratories in*

- secondary schools in Gaza Governorate and ways to reduce it , unpublished master's thesis.* The Islamic University, Gaza, Palestine..
- Al-Ayuni, Saleh Muhammad (2001). Determining the basic skills for teaching science in the laboratory in the intermediate stage in the Kingdom of Saudi Arabia from the point of view of faculty members in colleges 104-1630, (18) teachers. *Journal of the College of Education-United Arab Emirates University, 16*
  - Al-Jundi, Alia Abdullah Walal, ZakariaYahya (1994). *Obstacles to the applied programs of continuing education in some centers of community service and continuing education in the Kingdom of Saudi Arabia, the educational magazine*, Kuwait University 8 (30).
  - Daba, T. M. &Anbesaw. M. S. (2016). Factors Affecting Implementation of Practical Activities in Science education in Some Selected Secondary and Preparatory Schools of Afar Region, North East Ethiopia. *International Journal OF Environmental & Science, Education, 11(12). 5438- 5452*
  - Khalif, ZuhairNaji (2010). *The proposed training material on school laboratory work in the schools of the National Authority.Qalqilya*, Palestine: Publications of the Directorate of Education in Qalqilya Governorate
  - Ndiokubwayo. K. (2017). Investigating the status and barriers of science laboratory activities in Rwandan teacher training colleges. *Rwandan Journal of Education.4(1).47-54.*
  - SCORE (2009a). *Getting practical.a framework for practical science in schools*. London: DCSF. Available at: [www.scoreeducation.org/downloads/practical\\_work/framework.pdf](http://www.scoreeducation.org/downloads/practical_work/framework.pdf)
  - Shaheen, Jamil Noaman and Hattab, KhawlaZuhdi (2005).The school laboratory and its role in science education. Amman: Dar Alam Al *Thaqafa for publishing and distribution*.
  - Zeitoun, Ayeshe Mahmoud (2013).*Science teaching methods*.Amman: Dar Al-Shorouk for Publishing and Distribution.
- Al-Harbi, Salman bin Nayed (2017). The degree of availability of safety means in school laboratories for the science course in the primary stage from the point of view of teachers in the city of Buraidah, *Journal of Scientific Research in Education, (1) 131-1.*
- Al-Nashef, Salma Zaki (2004). *Methods of teaching science*. Amman: Dar Al-Shorouk. –
- Zeitoun, Ayeshe (2008). *Science teaching methods*. Amman: Dar Al-Shorouk.-