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Analysis of Available Lab Facilities at Secondary Level

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Abstract: *Science education plays an important role in the creation of creativity in the personality of students. There is a strong relationship between science education and practical work, due to which it is not possible for the students to have conceptual knowledge of science subjects without proper practical performance in the classroom. The purpose of this research study was to analyse the available lab facilities in secondary schools. The research was qualitative in nature. The population of this research study was all the high schools of district Narowal. There was a total of 157 high schools in district Narowal which were 75 boy high schools and 82 girls high schools. In the first stage, proportionate stratified sampling techniques were used to select male and female public sector high schools. In the second stage, 20% of high schools from each stratum were taken by using a simple random sampling technique. Therefore, there was a total of 31 public sector high schools, 20% of which 15 public sector high schools for boys and 16 public sector high schools for girls were selected. It is concluded that spring balance, pendulum, magnet, prism, screw gauge, glass slab and voltmeter facilities was highly observed in secondary schools which signifies their availability.*

Key Words: Lab Facilities, Secondary school, Science Laboratory

Introduction

Science labs are essential to the education of students in the field of science. World-changing research has been carried out in these laboratories. Many science experts believe that students learn more about science and have a better understanding of it when they participate in practical activities in a science laboratory (Arzi., 2003). As Fraser and Lee (2009) pointed out, advanced countries have gained scientific knowledge and are currently developing and discovering new possibilities of advancement in the twenty-first century, notably in science education.

In order to better define and revitalise scientific education, new standards are being developed to examine the content and delivery methods now used (Gidding & Waldrip, 2003). Hamed et al. (2009) reiterate the notion that scientific literacy may be attained via inquiry in general and inquiry applied to practical science education in the context of these standards. All of the abilities and skills that students can learn in inquiry-style laboratories, such as posing scientific questions, formulating hypotheses, conducting experiments, revising explanations, and presenting their findings, can be improved through the use of inquiry-type laboratories (Hofstein et al., 2005).

Developing countries have millions of opportunities to improve their science education. Many emerging countries are putting forth their best efforts. However, Pakistan's science education condition is dire, particularly at the school and college levels. First and foremost, schools have limited availability of materials, apparatus, equipments, and chemicals. The majority of

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science teachers are uninterested in their subjects and inept at teaching them. In comparison to teachers in industrialised countries, they have a lot of bookish knowledge but relatively little professional ability and expertise in teaching science. The best part is that science teachers do not use science laboratories, despite the fact that they have all of the necessary materials, apparatus, equipments, and chemicals. The availability of resource inputs has little value for academic purposes unless and until they are utilised; thus, the usage of science laboratories is critical for science education success. And, if resource usage is inefficient, the relationship between additional resources and outcome is unclear, according to Aburime (2004). This basic observation prompts a study into the relationship between educational results and inputs. (page 4)

It has long been recognised that science and technology play a significant role in the development of many cultures. Science is therefore being scrutinised in order to better the lives of people. Akpan (2006) suggested that many industrialised nations throughout the globe today have attained their present level of development through technological adaptation and the development of effective science and technology capacities in technology of the preceding. Many of the advancements in human well-being have been made possible because of advances in scientific knowledge. in the words of Asubel (1963).

Science, according to the Academic American Encyclopedia, as mentioned in Eshiet (1996), is defined as the creation and systematisation of positive knowledge about the physical cosmos. On another side, technology is viewed as the skill of producing objects generally helpful to man. So, it can be argued that Science creates the body of information and understanding which Technology depends on to produce commodities and services.

Research conducted in Sciences has led to the departmentalization of Science into different branches, such as

i. Physical Science which looks at the physical aspects of how things work. The major subsets are Chemistry, Physics and Astronomy.
ii. Life Science also called Biology, explores how different life forms work. Common subsets under it are Botany, Nutrition, Zoology, Genetics, Human Biology, and Medicine.
iii. Earth Science has as its subset Geology, Paleontology, Meteorology, Oceanography and Ecology.

However, it became necessary that Science be taught at all educational levels in order to ensure the nation's scientific development and advancement. Chemistry, Biology, and Physics are the three departments of Science at the high school level.

Learning is a two-way street, and students need to be actively engaged in the process. The only way for this knowledge to be useful, relevant, and meaningful to individuals is to personalise it. Individuals actively contribute to the advancement of human knowledge. There must be proof in all scientific research, according to Lagoke (1997). According to Lazarowitz & Tamir (1994), practical engagement is formative because it helps students grasp Science and how scientific concepts are formed. The goals of science education can only be achieved if an attempt is made to balance the emphasis on theory and experiments. Procedures and manipulation, observation, sketching and reporting and interpretation abilities are commonly stressed in Science practicals. Practical work serves the following purposes:

Inspiring students to learn by introducing them to a variety of concepts like research methods, collaboration, reproducible results, and fair testing while also instilling a sense of wonder and curiosity about what is being discovered, as well as teaching them how to apply those concepts in the classroom. Experiments are at the very heart of the scientific investigation. And the Science lab is the only place to conduct these kinds of investigations. One of the most unique features of science education is the use of laboratories. The National Council for the Accreditation of Teacher Education (NCERT) (2005a) defines a science laboratory as an educational facility used by science teachers

to teach students about science and how scientists examine the world around them. To conduct scientific research, this is a designated area. Learning about science can be enhanced by allowing students to interact with real-world materials and scientific theories through the use of various equipment, data gathering procedures, models, and theories.

In this study, we will look at the role of the laboratory and how it might make a contribution to science education. Students can get a grasp of scientific study processes in the laboratory, which may include the control of particular factors, careful observation and recording of data, and the formation of conclusions. For the purposes of summarising, the study of Science through hands-on laboratory experience serves a twofold purpose. The students learn the concepts of and facts of the Science itself and, in addition, learn how to grow in their knowledge and understanding of Science.

A Chemistry Laboratory provides the setting and tools necessary for teaching practical Chemistry skills that will assist students in dealing with examinations and their day-to-day activities. It has been shown that when children have the opportunity to learn through more than one sense, they learn more quickly and easily. Chemical equipment is a vital element of the topic of Chemistry, and its identification, manipulation, and general usage are all covered in detail throughout the course. Several, if not the majority, of the concepts and principles, often encountered in secondary school Chemistry may be shown or presented by experiments carried out using inexpensive apparatus. The Chemistry laboratory provides an excellent chance for students to make the connection between the microscopic world they are studying and the observable macroscopic world in which they are living. Laboratory experiences provide opportunities for team collaboration, inquiry-based knowledge, hands-on exercises, and exposure to enterprise laboratory equipment and technology (Okafor, 2000).

Experiments are central to science. And all of these experiments must be carried out at the school's Science laboratory. The laboratory has long been a distinguishing aspect of science education. It is a teaching tool used by teachers to help students understand Science and how scientists study the world around them. (Okeke 1995). It's a place where scientists can conduct their work. His view is that laboratories give students the opportunity to work with real-world materials and data, all while learning about and applying a wide range of scientific concepts and tools. They are examining the laboratory's role in science education and its possible contributions. Students can learn about scientific investigation processes in the laboratory, such as controlling particular variables, carefully observing and collecting data, and understanding findings. In conclusion, learning science through laboratory experience serves a dual purpose. Students study the fundamental principles and facts of science, as well as how to improve their knowledge and understanding of science.

A Chemistry Laboratory offers the space and resources necessary for teaching students practical Chemistry skills that will help them succeed in their examinations and in their daily life once they graduate. When children are given a chance to learn through more than one sense, they learn more rapidly and readily than when they are taught in a single sense. It is essential to understand the identification, manipulation, and overall use of laboratory equipment in order to succeed in the Chemistry course. Many, if not all, of the principles and concepts taught in secondary school Chemistry can be demonstrated or explained using simple equipment experiments. Working in the Chemistry laboratory allows us to make links between the unseen structure of atoms and the observable macro world in which we live. Laboratory experiences, among other things, allow for team development, inquiry-based education, hands-on exercises, and exposure to manufacturing laboratory technology and equipment (Stuckey et al., 2013).

Research Questions

This research study was conducted to answer the following questions.

1) What is the physical condition of science Laboratories at the secondary

level?

2) What is the usability and availability of practical work operators in the science rooms?
3) What is the difference in the utilization and condition of science Laboratories on the basis of gender locality and other demographic variables?
4) How can this proper setup be utilized in the available lab facilities for the performance of practical work?

Research Methodology

The research was qualitative in nature. The observation method was used to collect primary data from the schools in this way and the observation checklist was designed according to the needs and demands of the study in which there were various aspects of the science laboratory-like availability of resources, functional set up and availability of apparatus. A population is a target group of people having a definite set of characteristics for drawing the required information. It comprises all the possible cases (persons, objects, events) that constitute a known whole (Gay, 2008). The population of this research study was all the high schools of district Narowal. There was a total of 157 high schools in district Narowal which were 75 boys high schools and 82 girls high schools (School Education Department, 2018). Sampling is the process of selecting a set of participants for a study so that the individuals represent the wider group from which they were drawn (Gay, 2008). In this study, great care was taken to choose a sample that was representative of the entire community. Due to budgetary and time constraints, the researcher is unable to cover the entire population of the study. In the first stage, male and female public high schools were chosen using a proportionate stratified selection procedure. At the second stage, a simple random selection procedure was used to select 20% of high schools from each stratum. Therefore, there was a total of 31 public sector high schools, 20% of which were 15 public sector high schools for boys and 16 public sector high schools for girls, were selected.

Keeping in view the objectives of the study, the observation method was used to collect primary data from the schools in this way and the observation list was designed according to the needs and demands of the study in which there were various aspects of the science laboratory-like availability of resources functional set up and availability of apparatus.

The study required information to be gathered from educational institutions in the sample district of Narowal. After obtaining approval from the appropriate authorities, created research instruments (checklists) were distributed to respondents with the request that they fill out a form in a specific location for data collection. The main problem was that some of the survey participants were reluctant to finish the research tools. As a result of this, however, they were told that the information they provided wouldn't be shared with anybody and would only be utilised for the study. The response rate was greatly increased because each of these questionnaires was filled out and returned on its own. Mail was used to communicate with institutions that could not be accessed in person. The researcher went to great lengths to obtain accurate and trustworthy information. The process of collecting data from the respective respondents of this study almost took about 2 months. The collected data from the respective respondents through research instruments were properly analyzed and interpreted by using appropriate statistical tools as the data was collected by the observation method, so the data collected from this technique was analyzed according to the demands and nature of the study by using qualitative analysis technique.

Results

Table 1. Frequency and percentage of lab facilities in secondary schools

S. No	Apparatus	Availability			
		Yes		No	
		f	%	*f*	%

1	Vernier Caliper	15	48.4	16	51.6
2	Galvanometer	20	64.5	11	35.5
3	Ohmmeter	11	35.5	20	64.5
4	Thermometer	17	54.8	14	45.2
5	Voltmeter	22	71.0	9	29.0
6	Ammeter	17	54.8	14	45.2
7	Compass	17	54.8	14	45.2
8	Pendulum	26	83.9	5	16.1
9	Prism	25	80.6	6	19.4
10	Tuning fork	9	29.0	22	71.0
11	Screw gauge	24	77.4	7	22.6
12	Glass slab	22	71.0	9	29.0
13	Lens	17	54.8	14	45.2
14	Magnet	26	83.9	5	16.1
15	Meter scale	19	61.3	12	38.7
16	Spring balance	29	93.5	2	6.5
17	Ohms law apparatus	11	35.5	20	64.5
18	Parallelogram apparatus	16	51.6	15	48.4
	N				31

Table 1 indicatesthe frequency and percentage of lab facilities in the secondary school which shows the frequency and percentage of Spring balance(*f*=29, 93.5%), Pendulum(*f*=26, 83.9%),Magnet(*f*=26, 83.9%),Prism(*f*=25, 80.6%), Screw gauge(*f*=24, 77.4%), Glass slab (*f*=22, 71.0%) and Voltmeterfacilities(*f*=22, 71.0%) was highly observed from secondary schools which signifies its availability. Whereas, in some secondary school, Galvanometer (*f*=20, 64.5%), Thermometer (*f*=17, 54.8%), Ammeter (*f*=17, 54.8%), Compass (*f*=17, 54.8%), Lens (*f*=17, 54.8%), Meter scale (*f*=19, 61.3%) and Parallelogram apparatus (*f*=16, 51.6%) was observed moderately availability of lab facilities. Whereas, in some secondary school, Vernier Caliper (*f*=15, 48.4%), Ohmmeter (*f*=11, 35.5%), Tuning fork (*f*=9, 29.0%) and Ohms law apparatus (*f*=11, 35.5%) was observed low availability of lab facilities.

Table 2. Frequency and percentage of lab facilities condition/ quality in secondary schools.

S. No	Apparatus	Condition/Quality					
		Very Good		Good		Poor	
		f	%	*F*	%	*f*	%
1	Vernier Caliper	9	29.0	9	29.0	13	41.9
2	Galvanometer	11	35.5	6	19.4	14	45.2
3	Ohmmeter	7	22.6	13	41.9	11	35.5
4	Thermometer	4	12.9	14	45.2	13	41.9
5	Voltmeter	8	25.8	13	41.9	10	32.3
6	Ammeter	7	22.6	13	41.9	11	35.5
7	Compass	7	22.6	11	35.5	13	41.9
8	Pendulum	10	32.3	10	32.3	11	35.5
9	Prism	6	19.4	18	58.1	7	22.6
10	Tuning fork	6	19.4	18	58.1	7	22.6
11	Screw gauge	7	22.6	11	35.5	13	41.9
12	Glass slab	5	16.1	11	35.5	15	48.4
13	Lens	5	16.1	17	54.8	9	29.0
14	Magnet	3	9.7	16	51.6	12	38.7
15	Meter scale	4	12.9	14	45.2	13	41.9
16	Spring balance	7	22.6	13	41.9	11	35.5

S. No	Apparatus	Condition/Quality					
17	Ohms law apparatus	3	9.7	16	51.6	12	38.7
18	Parallelogram apparatus	10	32.3	11	35.5	10	32.3
	N						31

Table 2 indicates the frequency and percentage of lab facilities condition in the secondary school which shows the Galvanometer, Pendulum and Parallelogram apparatus were in very good condition and quality lab facilities. Whereas, in some secondary schools, Prism, Tuning fork, Magnet and Ohms law apparatus were good quality lab facilities. Whereas, in some secondary schools, Galvanometer, Glass slab, Vernier Caliper, Thermometer, Compass, Screw gauge and Meter scale was poor quality of lab facilities.

Table 3. Quantity of lab facilities in secondary schools.

S. No	Apparatus	Quantity
1	Vernier Caliper	20
2	Galvanometer	30
3	Ohmmeter	13
4	Thermometer	26
5	Voltmeter	32
6	Ammeter	22
7	Compass	21
8	Pendulum	34
9	Prism	34
10	Tuning fork	12
11	Screw gauge	29
12	Glass slab	26
13	Lens	17
14	Magnet	31
15	Meter scale	23
16	Spring balance	37
17	Ohms law apparatus	12
18	Parallelogram apparatus	20

Table 3 indicates the quantity of the lab facility, which shows that the Galvanometer, Voltmeter, Pendulum, Prism, Magnet and Spring balance have more in quantity in the secondary schools of Narowal. Whereas, Ohmmeter, Tuning fork, Lens and Ohms law apparatus have less in quantity in the secondary schools of Narowal.

Table 4. Frequency and percentage of lab facilities in boys and girls secondary schools.

S. No	Apparatus	Availability							
		Boys' Schools				Girls' Schools			
		Yes		No		Yes		No	
		f	%	*f*	%	*f*	%	*f*	%
1	Vernier Caliper	8	53.3	7	46.7	7	43.8	9	56.3
2	Galvanometer	10	66.7	5	33.3	10	62.5	6	37.5
3	Ohmmeter	6	40.0	9	60.0	5	31.3	11	68.8
4	Thermometer	8	53.3	7	46.7	9	56.3	7	43.8
5	Voltmeter	10	66.7	5	33.3	12	75.0	4	25.0
6	Ammeter	10	66.7	5	33.3	7	43.8	9	56.3
7	Compass	7	46.7	8	53.3	10	62.5	6	37.5

8	Pendulum	13	86.7	2	13.3	13	81.3	3	18.8
9	Prism	13	86.7	2	13.3	12	75.0	4	25.0
10	Tuning fork	3	20.0	12	80.0	6	37.5	10	62.5
11	Screw gauge	12	80.0	3	20.0	12	75.0	4	25.0
12	Glass slab	11	73.3	4	26.7	11	68.8	5	31.3
13	Lens	8	53.3	7	46.7	9	56.3	7	43.8
14	Magnet	13	86.7	2	13.3	13	81.3	3	18.8
15	Meter scale	8	53.3	7	46.7	11	68.8	5	31.3
16	Spring balance	13	86.7	2	13.3	16	100	0	0
17	Ohms law apparatus	4	26.7	11	73.3	7	43.8	9	56.3
18	Parallelogram apparatus	8	53.3	7	46.7	8	50.0	8	50.0
	N				15				16

Table 4 indicates the frequency and percentage of lab facilities in the boys secondary schools which shows whereas the frequency and percentage of spring balance Pendulum (*f*=13, 86.7%), Prism (*f*=13, 86.7%), Screw gauge (*f*=12, 80.0%), Magnet (*f*=13, 86.7%) and spring balance (*f*=13, 86.7%) was highly observed from secondary schools which signifies its availability. Whereas, in some boys secondary school, Galvanometer Vernier Caliper (*f*=8, 53.3%), Galvanometer (*f*=10, 66.7%), Thermometer (*f*=8, 53.3%), Voltmeter (*f*=10, 66.7%), Ammeter (*f*=10, 66.7%), Glass slab, Lens (*f*=8, 53.3%), Meter scale (*f*=8, 53.3%) and Parallelogram apparatus (*f*=8, 53.3%) was observed moderately availability of lab facilities. Whereas, in some boys secondary schools, Ohmmeter (*f*=6, 40.0%), Compass (*f*=7, 46.7%), Tuning fork (*f*=3, 20.0%) and Ohms law apparatus (*f*=4, 26.7%) was observed low availability of lab facilities.

Whereas, the frequency and percentage of lab facilities in the girls secondary schools which shows whereas the frequency and percentage of Voltmeter (*f*=12, 75.0%), Pendulum (*f*=13, 81.3%), Prism (*f*=12, 75.0%), Screw gauge (*f*=12, 75.0%), Magnet (*f*=13, 81.3%) and spring balance (*f*=16, 100%) was highly observed from secondary schools which signifies its availability. Whereas, in some girls secondary school, Galvanometer (*f*=10, 62.5%), Thermometer (*f*=9, 56.3%), Compass (*f*=10, 62.5%), Glass slab (*f*=11, 68.8%), Lens (*f*=9, 56.3%), Meter scale (*f*=11, 68.8%) and Parallelogram apparatus (*f*=8, 50.0%) was observed moderately availability of lab facilities. Whereas, in some girls secondary school, Vernier Caliper (*f*=7, 43.8%), Ohmmeter (*f*=5, 31.3%), Ammeter (*f*=7, 43.8%), Tuning fork (*f*=6, 37.5%) and Ohms law apparatus (*f*=7, 43.8%) was observed low availability of lab facilities.

The above finding shows that girls secondary schools have more available lab facilities than boys secondary schools lab facilities.

Table 5. Frequency and percentage of lab facilities condition/ quality in boys and girls secondary schools.

S. No	Apparatus	Condition/Quality											
		Boys' Schools						Girls' Schools					
		V Good		Good		Poor		V Good		Good		Poor	
		f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
1	Vernier Caliper	5	33.3	3	20.0	7	46.7	4	25.0	6	37.5	6	37.5
2	Galvanometer	4	26.7	5	33.3	6	40.0	7	43.8	1	6.3	8	50.0
3	Ohmmeter	4	26.7	6	40.0	5	33.3	3	18.8	7	43.8	6	37.5
4	Thermometer	0	0	9	60.0	6	40.0	4	25.0	5	31.3	7	43.8
5	Voltmeter	5	33.3	4	26.7	6	40.0	3	18.8	9	56.3	4	25.0
6	Ammeter	2	13.3	6	40.0	7	46.7	5	31.3	7	43.8	4	25.0
7	Compass	5	33.3	8	53.3	2	13.3	2	12.5	5	31.3	9	56.3
8	Pendulum	5	33.3	7	46.7	3	20.0	5	31.3	3	18.8	8	50.0

9	Prism	2	13.3	9	60.0	4	26.7	4	25.0	9	56.3	3	18.8
10	Tuning fork	3	20.0	9	60.0	3	20.0	3	18.8	9	56.3	4	25.0
11	Screw gauge	1	6.7	6	40.0	8	53.3	6	37.5	5	31.3	5	31.3
12	Glass slab	3	20.0	6	40.0	6	40.0	2	12.5	5	31.3	9	56.3
13	Lens	1	6.7	9	60.0	5	33.3	4	25.0	5	31.3	7	43.8
14	Magnet	2	13.3	8	53.3	5	33.3	1	6.3	8	50.0	7	43.8
15	Meter scale	3	20.0	6	40.0	6	40.0	1	6.3	8	50.0	7	43.8
16	Spring balance	4	26.7	8	53.3	3	20.0	3	18.8	5	31.3	8	50.0
17	Ohms law apparatus	2	13.3	9	60.0	4	26.7	1	6.3	7	43.8	8	50.0
18	Parallelogram apparatus	4	26.7	6	40.0	5	33.3	6	37.5	5	31.3	5	31.3

Table 5 indicates the frequency and percentage of lab facilities condition and quality in the secondary school which shows the Vernier Caliper, Pendulum and Voltmeter was very good condition and quality of lab facilities. Whereas, in some secondary school, Thermometer, Compass, Prism, Tuning fork, Lens, Magnet, springbalance and Ohms law apparatuswas good quality of lab facilities. Whereas, in some secondary school, Screw gauge and Ammeterwas poor quality of lab facilities.

Whereas, the frequency and percentage of lab facilities condition and quality in the secondary school which shows the Galvanometer, Pendulum and Parallelogram apparatus was very good condition and quality of lab facilities. Whereas, in some secondary school, Prism, Tuning fork, Magnet and Ohms law apparatuswas good quality of lab facilities. Whereas, in some secondary school, Galvanometer, Glass slab, Vernier Caliper, Thermometer, Compass, Screw gauge and Meter scalewas poor quality of lab facilities.

The above findings show that the boys secondary schools have good quality of lab facilities then girls secondary schools lab facilities.

Table 6. Quantity of lab facilities in secondary schools.

S. No	Apparatus	Quantity	
		Boys' Schools	Girls' Schools
1	Vernier Caliper	11	9
2	Galvanometer	14	16
3	Ohmmeter	8	5
4	Thermometer	12	14
5	Voltmeter	15	17
6	Ammeter	13	9
7	Compass	10	11
8	Pendulum	17	17
9	Prism	18	16
10	Tuning fork	5	7
11	Screw gauge	15	14
12	Glass slab	12	14
13	Lens	8	9
14	Magnet	16	15
15	Meter scale	12	11
16	Spring balance	15	22
17	Ohms law apparatus	4	8
18	Parallelogram apparatus	9	11

Table 6 indicates the quantity of the lab facility which shows the quantity of boys secondary schools and girls secondary schools that Galvanometer, Voltmeter,

Pendulum, Prism, Magnet and spring balance have more in quantity in the secondary schools of Narowal. Whereas, Ohmmeter, Tuning fork, Lens and Ohms law apparatus have less in quantity in the secondary schools of Narowal. Whereas, the girls' secondary schools have more quantity than boys' secondary schools in Narowal.

Discussion

Following are the conclusions of the study that are reviewed in this part critically: According to the finding of the study that spring balance, pendulum, magnet, prism, screw gauge, glass slab and voltmeter facilities was highly observed in secondary schools which signifies its availability. Permendiknas (2007) explained that science laboratory facilities for secondary school students are very important for both teaching and learning in a practical form and the uses of the lab facilities. On the other way, if these science lab facilities are not available for the secondary school students for practical work, the teachers may not be maximizing the use of science lab facilities which may negatively affect the optimization of educational output and production.

So, the science lab facilities and equipment in the schools are very important for both learning and teaching needs, especially to identify the practical aspects and physical aspects for the purpose of improving the quality of teaching and learning in the secondary schools' science laboratory. These science laboratory facilities also motivate the students as well as enhance the students' learning and reduce undesirable behavior and discipline problems (Fldoe, 2015).

In several countries, the teachers modify the science laboratory learning environment because it gives opportunities to students to construct and explore knowledge in a more encouraging and conducive learning environment (Arzi, 2003).

Wahyono and Rusman (2017) argued that science laboratory activities might verify the knowledge and theory with practical work provided by teachers in the laboratory and classroom. The laboratory activities are actually the reflection of the classroom session that the students already learned. Therefore, in many studies, there is a strong relationship between classroom theory and practical laboratory work. On the other hand, without lab facilities, the students do not have the opportunity to build their knowledge, hinder the development of their creativity and generate new ideas. Therefore, when all laboratory facilities are provided, the students have opportunities to build their knowledge and generate new ideas.

Conclusion

The goal of this investigation is to determine whether or not Narowal High School has lab facilities. On the basis of the availability of lab facilities, the findings are reported above and the conclusion is presented here.

It is concluded that spring balance, pendulum, magnet, prism, screw gauge, glass slab and voltmeter facilities was highly observed in secondary schools, which signifies their availability. Whereas galvanometer, thermometer, Ammeter, Compass, Lens, Meter scale and Parallelogram apparatus was observed moderately available in lab facilities. On the other hand, in some secondary schools, Vernier Caliper, Ohmmeter, Tuning fork and Ohms law apparatus were observed with low availability of lab facilities.

It is also concluded that the lab facilities condition and quality in the secondary school which Galvanometer, Pendulum and Parallelogram apparatus was a very good condition and quality of lab facilities. Whereas, in some secondary schools, Prism, Tuning fork, Magnet and Ohms law apparatus were good quality lab facilities. On the other hand, in some secondary schools, Galvanometer, Glass slab, Vernier Caliper, Thermometer, Compass, Screw gauge and Meter scale was the poor quality lab facilities.

It is also concluded that the quantity of the lab facility in which Galvanometer, Voltmeter, Pendulum, Prism, Magnet and spring balance have more in quantity in the secondary schools of Narowal. Whereas, Ohmmeter, Tuning fork, Lens and Ohms law apparatus have less in quantity in the secondary schools of Narowal.

In comparison, it is concluded that the girls' secondary schools have more available

lab facilities than boys' secondary schools' lab facilities. The above findings show that the boys' secondary schools have a good quality of lab facilities than girls' secondary schools' lab facilities. Whereas the girls' secondary schools have more quantity than boys secondary schools of Narowal.

Recommendation

The following research recommendations were given below:

1. The government should promote Science and technology by providing laboratories with all materials that can help in teaching Chemistry in all secondary schools and regularly inspect to make sure that these facilities are still functional.
2. The secondary scheme of work should be reviewed, and more interest should be put into the practical aspect of Chemistry in Secondary Schools.
3. Chemistry teachers should develop the spirit of professionalism to utilize the available laboratory facilities in teaching Chemistry.
4. An inventory of all functional and non-functional facilities should be preserved to ensure that they are always available when such goods are depleted in the lab.
5. Schools should seek funding from organisations such as PTAs, non-governmental organisations, and so on.
6. The researchers believe that this research should not be regarded as conclusive, and they recommend that further work be done in subjects such as biology and physics since the relevance of laboratory facility availability and usability cannot be overstated.
7. In Chemistry, a research study on the evaluation of laboratory facilities and materials using a checking list approach should be conducted.

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