International Journal of Research in Social Sciences
Vol. 11 Issue 01, January 2021
ISSN: 2249-2496 Impact Factor: 7.081
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gate as well as in Cabell's Directories of Publishing Opportunities, U.S.A

AWARENESS OF SECONDARY AND SENIOR SECONDARY SCHOOL SCIENCE TEACHERS TOWARDS SCIENCE PRACTICAL

Rahat Parveen*
Sajitha Rajan**

Abstract

For giving hands on experience, practical classes with good laboratory facilities and excellent teachers knowledge and practical approaches towards teaching in the schools is one of the essential and unavoidable equipment to develop constructive or learning by doing approach of understanding among the student especially the practical subjects like Science.

This study has explored the awareness of secondary school science teachers towards practical classes. Survey method has been used in this study. Purposive sampling technique used in this study. Self constructed and validated Attitude inventory and awareness test has been used in this study to gather data. Sample size is 71. The data collected were analyzed by employing Mean, Standard Deviation (S.D), percentage analysis, t- Test and Karl Pearson's Product Moment, ANOVA.

The objective of the study was 1.To find out the significant difference in the awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of gender.2.To find out the significant difference in the awareness of secondary and senior secondary schools science teachers towards practical on the basis of types of institution.3.To find out the significant difference in the awareness of secondary and senior secondary schools science teachers towards practical on the basis of their educational qualification and types of school.

The finding of the study revealed that there is significant difference in awareness of secondary and senior secondary school science teachers towards science practical on the basis of gender and There is no significant difference in the attitude and awareness of secondary and senior secondary school science teachers towards science practical on the basis of educational qualification and types of school.

.

Key Words: - Awareness, Science Practical, Secondary and Senior secondary school science teachers.

Rahat Parveen*- Assistant Professor, Shri Ramswaroop Memorial University
Sajitha Rajan**- Assistant Professor, Shri Ramswaroop Memorial University

INTRODUCTION

The modern civilization is a scientific civilization. This is an age where the modern society is completely drawn into the scientific environment; and science has become an integral part of our life and living. Now, we cannot think of a world without science. The wonderful achievements of science have glorified the modern world.

In a progressive forward-looking society, science can play a truly liberating role, helping people escape from the vicious cycle of poverty, ignorance and superstition" (National Curriculum Framework - 2005).

Science is a cumulative and endless series of empirical observations which result in the formation of concepts and theories, with both concepts and theories being subject to modification in the light of further empirical observation. Science is both a body of knowledge and the process of acquiring knowledge (Frederic Fitzpatrick, 1960).

SCIENCE PRACTICAL

For an effective and efficient teaching in Science a good laboratory with necessary equipment is essential. The main aim of science is not only stuffing the minds of pupils with mere facts but also developing in them the application ability; skills of experimentation, construction, improving scientific attitude; interest; appreciation etc, These type of tendency or we can say the scientific attitude can be achieved only if the students get the opportunities to work with their own hands in an appropriate atmosphere.

'Learning by doing' is one of the cardinal principles of science. Experimentation has put many theories on a sound footing and has also resulted in the rejection of many.

Awareness is general mental ability, atomization of basic facts and knowledge about science practical. Awareness is the actual accomplishment of an individual in the examination and other test based on subject matter and content. Awareness is an important aspect of the teachers who engaged in the process of education since it depends on the degree of effectiveness for maximum/minimum knowledge.

The major purpose of science practical awareness test was to monitor teachers knowledge and to provide ongoing feedback to teachers during the teaching- learning process and to identify the teachers teaching difficulties-whether persistent or recurring.

SIGNIFICANCE OF THE STUDY

Practical work improves teaching science and it will clarify the importance of linking theory to the practical part of it. For motivating and developing awareness among science teachers researcher decided to conduct study on teachers. So, this study is focused on exploring the awareness of science teachers towards practicality of the subject, According to the researchers that teacher's awareness, their knowledge and practical approaches are greatly responsible for making a successful practical class.

This study will help the curricular developer to construct more constructivist science curricula. It will be helpful for those teachers who need to change their teaching strategies and for professional development. This study is beneficial for the policy makers to make policies with respect to the need of the society. This study will also helpful for teacher education institutions to promote practical activities in their institution.

STATEMENT OF THE PROBLEM

The statement of the problem is:-

Awareness of Secondary and Senior Secondary School Science Teachers towards Science Practical.

OBJECTIVES

1. To find out the significant difference in the awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of gender.
2. To find out the significant difference in the awareness of secondary and senior secondary schools science teachers towards practical on the basis of types of institution.
3. To find out the significant difference in the awareness of secondary and senior secondary schools science teachers towards practical on the basis of their educational qualification.

HYPOTHESES

1. There is no significant difference in the attitude and awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of gender.
2. There is no significant difference in the attitude and awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of types of institution.
3. There is no significant difference in the attitude and awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of their educational qualification.

DELIMITATIONS

1. The study is limited to secondary and senior secondary schools teachers of Patna
2. Only 71 teachers were taken as sample.

METHODOLOGY

Methodology is the procedure of research techniques. It is the logic of scientific investigation. The method employed depends upon the nature of the problem selected and the kind of data necessary for its solution. Since the problem of the study is concerned with the Awareness of Secondary and Senior Secondary Science Teachers towards Practical Classes. So survey method was employed.

Population

The population of the study comprises all secondary and senior secondary schools science teachers of Patna.

Sample

The representative proportion is called Sample. The sample for the present study constitutes 71 secondary and senior secondary science teachers' from schools of Patna.

DISTRIBUTION OF THE SAMPLE

Table No.1: *Sample size on the basis of gender*

GENDER	NUMBER	PERCENTAGE
Male	26	37 %
Female	45	63 %
Total	71	100 %

It is inferred from the table 1 that 37 % of the respondents were male and 63% were female. This has been shown from figure 1.

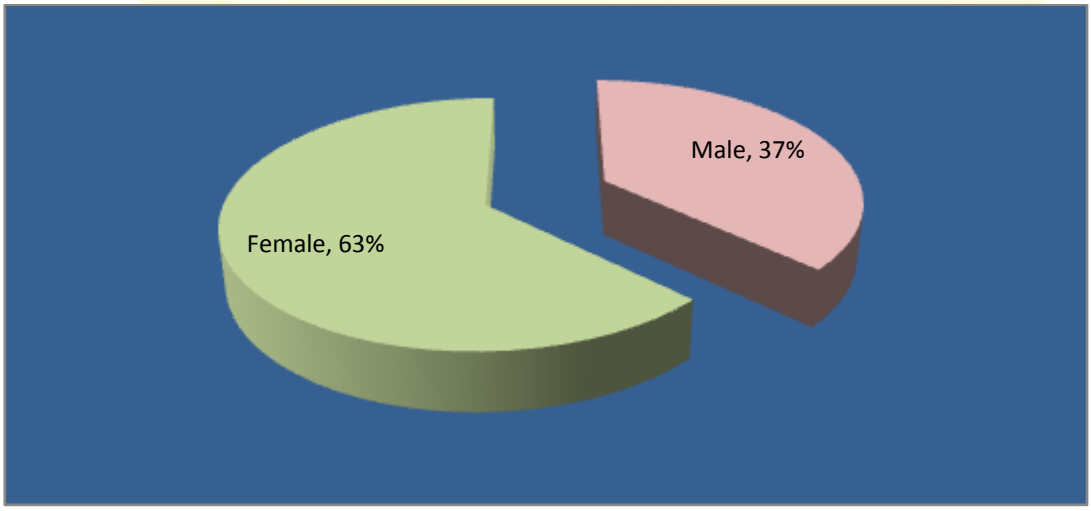

Fig. No 1:-*Graphical representation of the sample on the basis of gender*

Table No.2:- *Sample size on the basis of qualification*

QUALIFICATION	NUMBER	PERCENTAGE
Graduate	10	14 %
Post Graduate	55	78 %
Ph.D	6	8 %
Total	71	100 %

It is inferred from the table 3 that 14% respondents were Graduate,78% respondents were Post Graduate and 8% were Ph.D. This has been shown from figure 3

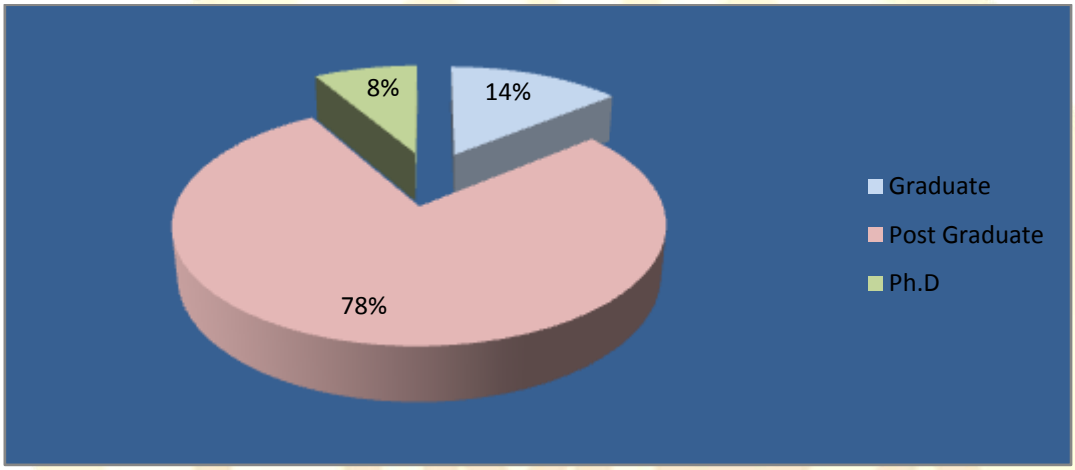

Fig. No. 2: *Graphical representation of the sample on the basis of educational qualification.*

Table No. 3:- *Sample size on the basis of types of institution*

TYPES OF INSTITUTION	NUMBER	PERCENTAGE
Government	29	41 %
Private	42	59 %
Total	71	100 %

This is inferred from the table 2 that 41% of respondent were from government institution and 59% respondent were from private institution. This is shown below in figure 2.

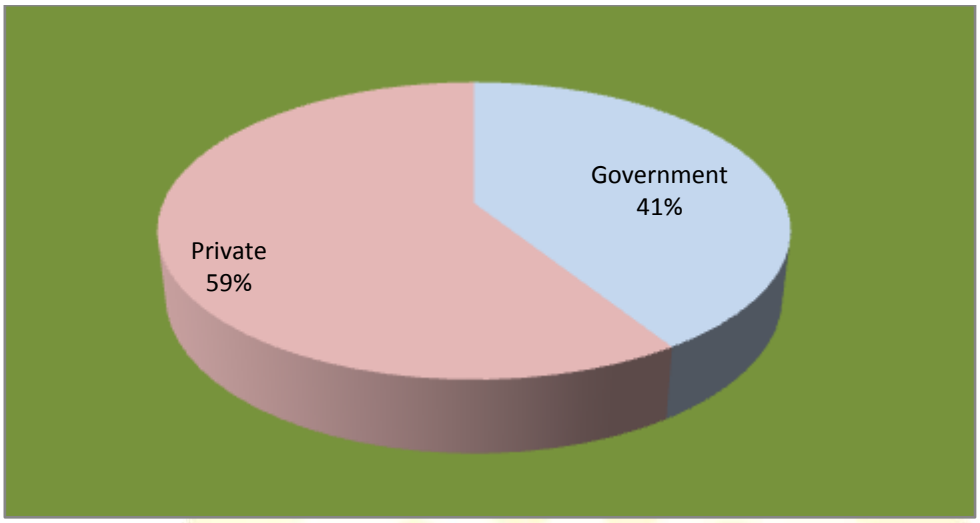

Fig No. 3:- *Graphical representation of the sample on the basis of types of institution.*

Tool used in this study

As the study aim is to find out the science teachers awareness towards practical classes. The investigator has used the following tools.

Science Practical Awareness Test (SPAT). Self constructed and validated Awareness Test to measure the awareness towards science practical classes.

Procedure:

To assess the awareness of science teachers towards practical classes the researchers used a self-constructed and validated awareness test was used. Scale consisted of 23 items. The reliability test was conducted on the science teacher's awareness towards practical class using Kuder Richardson formula 20 (k20) methods. The reliability coefficient of the awareness test was found 0.593.

ANALYSIS

Ho 1. There will be no significant difference in the awareness of secondary and senior secondary science teachers towards practical classes on the basis of gender.

TABLE 4.21: *Showing t-ratio*

Awareness towards practical classes on the basis of teaching experiences

TEACHERS	N	MEAN	S.D	t-ratio	LEVEL OF SIGNIFICANCE
Male	26	12.92	4.049	2.980	Significant at 0.05 level
Female	45	15.71	3.321		

(At 0.05% level of significance, the table value is 1.98)

It is inferred from the table 4.20 that the calculated value of 't' is 2.980 which is more than the critical value of 't'(1.98) at 0.05% level of significance, also significant at 0.01% level. Hence, the null hypothesis is rejected. It means there is significant difference between secondary and senior secondary schools science teachers in their awareness towards practical classes.

In table 4.21, if the mean value of male and female teachers is compared, then the mean value of female teachers is more. So, it can be concluded that female teachers have high level of awareness towards practical classes. The graphical representation is shown below in figure 4.21

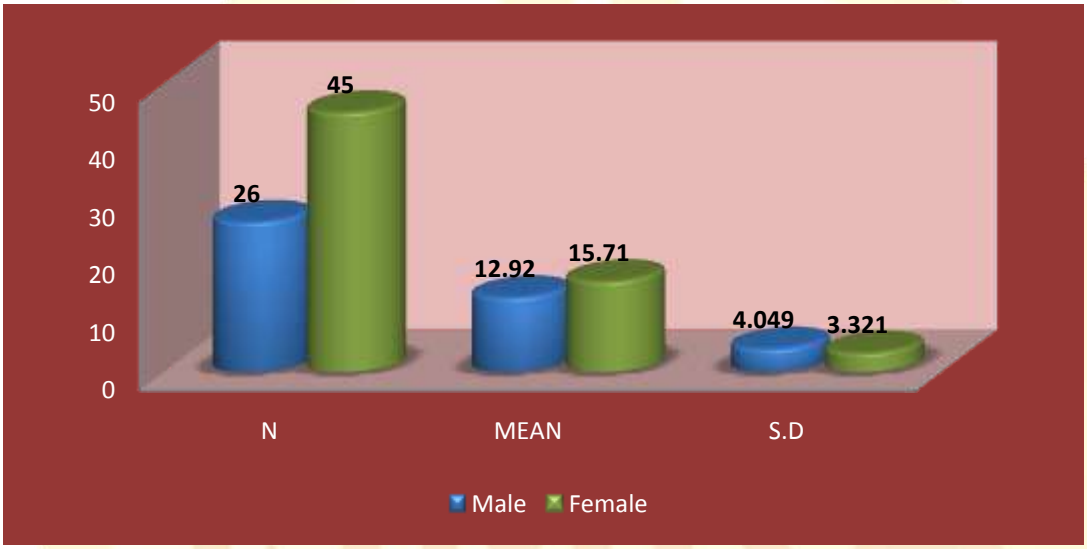

Fig. 4.21: *Graphical representation of Mean Score, N and Standard deviation of awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of gender.*

Ho 2.There will be no significant difference in the awareness of secondary and senior secondary science teachers towards practical classes on the basis of their qualification.

TABLE 4.22: *Showing F-ratio*

Awareness towards practical classes on the basis of educational qualification

Qualifiction	**Sum of squares**	**df**	**Mean squares**	**'F' value**	**Significance**
Between groups	29.522	2	14.761	1.010	Not significant
Within groups	993.661	68	14.613		
Total	1023.83	70			

(Table value 'F' is 3.13 at 0.05% level of significance)

From the above table 4.22 we can see that the calculated value of 'F' is 1.010 is less than the critical value 3.13. Hence we accept the null hypothesis. Which mean that there is no significant difference in the awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of educational qualification .The graphical representation is shown below in figure 4.22

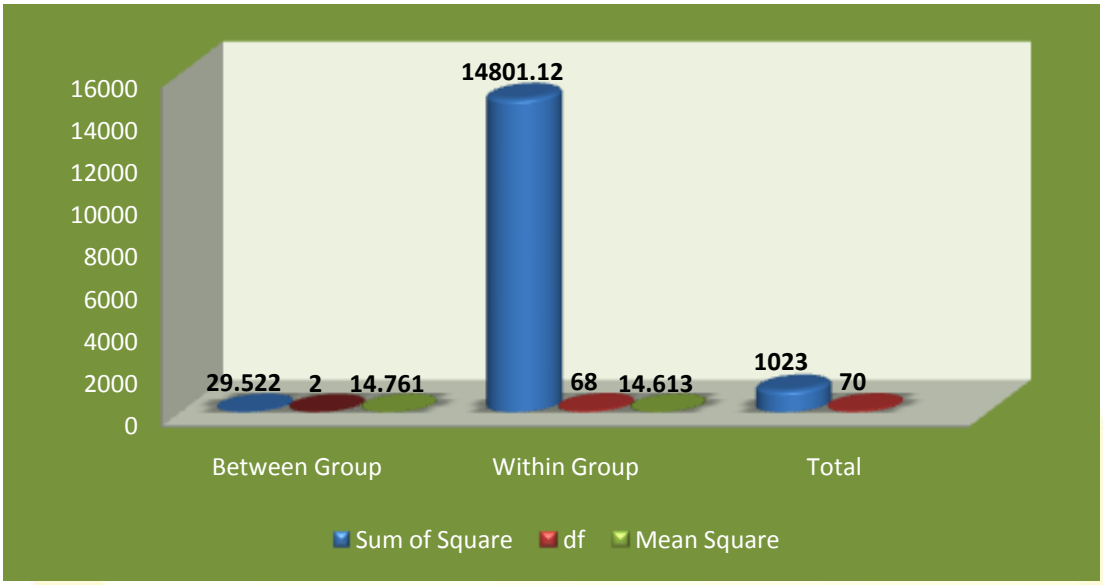

Fig. 4.22: *Graphical representation of Mean Score, N and Standard deviation of awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of educational qualification.*

Ho 9.There will be no significant difference in the awareness of secondary and senior secondary science teachers towards practical classes on the basis of types of school.

TABLE 4.23: *Showing t-ratio*

Awareness towards practical classes on the basis of types of institution

Types of Institution	**N**	**MEAN**	**S.D**	**t-ratio**	**LEVEL OF SIGNIFICANCE**
Government	29	13.83	4.376	1.519	Not significant
Private	42	15.29	3.315		

(At 0.05% level of significance, the table value is 1.98)

It is inferred from the table 4.23 that the calculated value of 't' is 1.519 which is less than the critical value of 't'(1.98) at 0.05% level of significance. Hence, the null hypothesis is accepted. It means there is no significant difference in the awareness of secondary and

senior secondary schools science teachers towards practical classes on the basis of medium of institution. The graphical representation is shown below in figure 4.23.

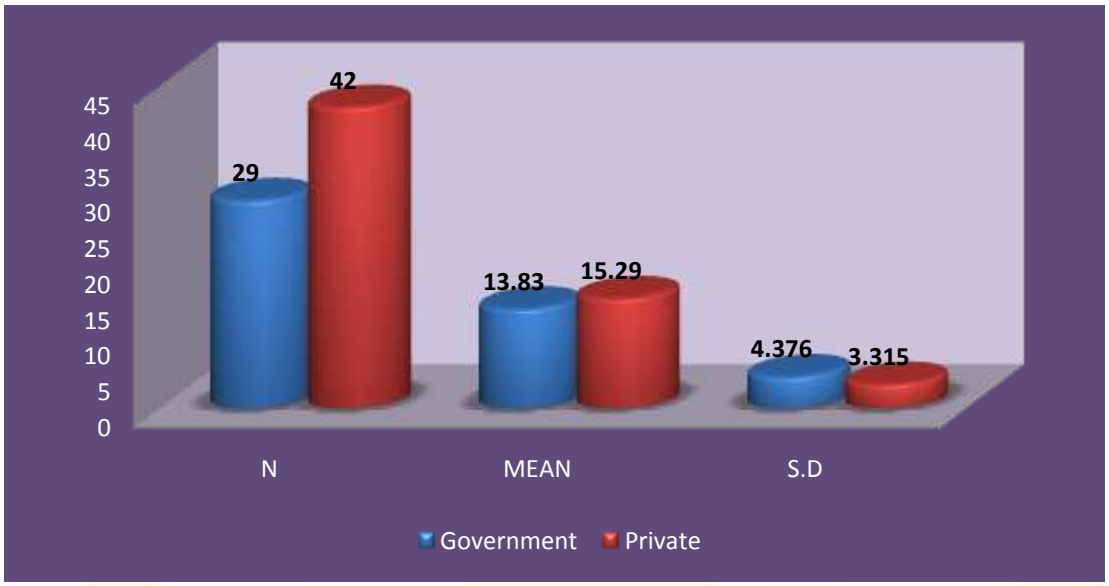

Fig. 4.23: *Graphical representation of Mean Score, N and Standard deviation of awareness of secondary and senior secondary schools science teachers towards practical classes on the basis of types of institution.*

CONCLUSION

The role of practical classes becomes very important when our aim is to develop science process skill and improve learner's quality in the cognitive as well as non- cognitive domains. Practical work in school science has been recognized that more needs to be done to improve its effectiveness in developing conceptual understanding. The study reveals that there is significant difference in awareness of secondary and senior secondary school science teachers towards science practical on the basis of gender and there is no significant difference in the attitude and awareness of secondary and senior secondary school science teachers towards science practical on the basis of educational qualification and types of school.

References

Millar, R. (2004). The Role of Practical Work in the Teaching and Learning of Science. Paper prepared for the Committee: High School Science Laboratories: Role and Vision. National Academy of Sciences, Washington DC. York: University of York.

National Curriculum Frame Work (2005) N.C.E.R.T. New Delhi.

Abrahams.I and Saglam,M.(2010).A study of teachers' views towards practical work in secondary schools in England and Wales. *International Journal of Science Education*. pp.753-768. Retrieved from https://hal.archives-ouvertes.fr/hal-00582126/document

Salami,I.A.. and Olotu, M.O.(2014).Teachers Awareness and Improvisation Skills of Scientific Visual Resources as Determinant of Pupils Learning Outcomes in Basic Science and Technology. *IOSR Journal of Humanities And Social Science* . *19* (2). PP 26-32. Retrieved from https://www.researchgate.net/publication/271262057_Teachers'_Awareness_and_Improvisation_Skills_of_Scientific_Visual_Resources_as_Determinant_Of_Pupils_Learning_Outcomes_in_Basic_Science_and_Technology

Hinneh,J.T. (2017). Attitude towards Practical Work and Students 'Achievement in Biology: A Case of a Private Senior Secondary School in Gaborone. Botswana. *IOSR Journal of Mathematics. 13*(4). PP 06- 11.Retrieved from http://www.iosrjournals.org/iosr-jm/papers/Vol1issue4/Versio-1/BI1304010611