



PROBLEMS FACED BY THE BIOLOGICAL SCIENCE B.ED., STUDENTS IN DOING PRACTICAL'S IN THE LABORATORY AT PUDUKKOTTAI DISTRICT

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ABSTRACT

The aim of the present paper is to identify the problems that are faced by the Biological science B.Ed., students in doing practical's in the laboratory at Pudukkottai District, Tamil Nadu state. The sample consisted of 75% Biological science B.Ed., students. Survey method was used to collect the data. Percentage analysis was used to analyze the data. Analysis of the data indicated that the main problems faced by the Biological science B.Ed., students were : Administrator does not give enough time, Intermittent power cut occurs in the laboratory, Absence of adequate apparatus, Absence of safety dress, Absence of laboratory manuals and Absence of lab assistant.

KEYWORDS : Biological science B.Ed., students, problems, practical's, Laboratory

INTRODUCTION

Practical work in science is acknowledged and widely accepted as an important component in the teaching and learning of science concepts. Learning by doing is a cardinal principle of teaching science. Science cannot be taught as a theory subjects. Scientific theory is based on the process of inquiry and experimentation. The learning of science without practical work is incomplete. Practical work is an essential component of learning science. The findings in science are put to test in the laboratory. The learning by doing is achieved only through experimentation. Hence we can say that practical work is an utmost necessity and designing practical work in a science laboratory is an effective instructional method of teaching science.

A laboratory is a facility that provides controlled conditions in which scientific or technological research, experiments, and measurement may be performed.

Shulman and Tamir, in the *Second Handbook of Research on Teaching* (Travers, ed., 1973), listed five groups of objectives that may be achieved through the use of the laboratory in science classes:-

1. skills - manipulative, inquiry, investigative, organizational, communicative
2. concepts - for example, hypothesis, theoretical model, taxonomic category
3. cognitive abilities - critical thinking, problem solving, application, analysis, synthesis.
4. understanding the nature of science - scientific enterprise, scientists and how they work, existence of a multiplicity of scientific methods, interrelationships between science and technology and among the various disciplines of science.
5. attitudes - for example, curiosity, interest, risk taking, objectivity, precision, confidence, perseverance, satisfaction, responsibility, consensus, collaboration, and linking science (1973, p.1119).

NEED AND SIGNIFICANCE OF THE STUDY

The use of laboratory in teaching Biological science has become a dogma among the Biological science teacher educators and B.Ed., students. Biological science B.Ed., students do not find convenient to do the practical work in the laboratory. They usually complain the lack of materials and equipment to carryout practical work. In addition, most of the laboratory class rooms are not equipped with work tables that have sink, a water supply, natural gas and electrical outlets available in sufficient quantity to support Biological science laboratory. There are no approved guidelines for the safe use,

maintenance, storage and disposal of laboratory materials. In this aspect, the study has its own importance and the present study assumes significance.

OBJECTIVES OF THE STUDY

1. To identify the level of problems faced by the Biological science B.Ed., students while doing the practical's in the laboratory.
2. To identify the significant difference between the associate factors such as type of management, college category and location of college and in relation to problems of laboratory practical's.
3. To provide the possible ways of overcoming these problems that B.Ed., students encounter.

HYPOTHESES OF THE STUDY

1. Biological science B.Ed., students faced more problems when doing practical's in the laboratory in colleges of Education.
2. There exist a significant difference between the associative factors such as type of management, college category and location of college in relation to the problems faced by the Biological science B.Ed., students while doing practical's in the laboratory.

RESEARCH METHOD

This study adopted a normative survey method. In this study the data was collected from the Biological science B.Ed., students with the view of ascertaining problems that are faced in doing practical work in laboratory at Colleges of Education in Pudukkottai District.

RESEARCH TOOL

The investigator constructed a research tool on identification of problems faced by the Biological science B.Ed., students while doing the practical's in the Biological science laboratory. In this study the investigator used questionnaire to collect data from the respondents. The questionnaire consisting of two sections. Section 'A' was used to collect the demographic characteristics of the respondents. Section 'B' consisted of 20 items on a 3-point rating scale manner were follows Greater extent, Lesser extent and Not at all.

SAMPLE AND SAMPLING TECHNIQUE

In this study the investigator selected too Biological science B.Ed., students who are studying colleges of education in pudukkottai District. Cluster Sampling technique was adopted for collect data.

STATISTICAL TECHNIQUE

Percentage analysis was used to analyze the collected data.

RESULT AND DISCUSSION**Table 1 Item wise analysis of percentage scores indicating the level of problems faced by the Biological Science B.Ed.,, students while doing practical's in the laboratory .**

SI.NO	IDENTIFICATION OF PROBLEMS			
	STATEMENTS	TO A GREAT EXTENT (%)	TO SOME EXTENT (%)	NOT AT ALL (%)
1	The administration does not give importance for practical's.	41.42%	35.24%	23.34%
2	Administration does not give enough time.	62.20%	24.27%	13.53%
3	Biological science teacher educator does not give importance for practical's.	45.42%	48.34%	06.24%
4	Intermittent current cut occurs in the laboratory.	63.30%	18.11%	18.59%
5	Absence of proper space for doing the zoology experiments individually.	53.20%	32.15%	14.65%
6	Absence of adequate apparatus for individual B.Ed.,, student.	70.43%	15.36%	14.21%
7	Absence of safety dress to carry out the dangerous experiments.	65.11%	21.30%	13.59%
8	Absence of laboratory manuals to understand the procedure of experiments.	51.35%	26.27%	22.38%
9	Absence of records to write the result of experiments.	42.10%	37.25%	20.65%
10	Teacher educator does not demonstrate all the experiments.	37.13%	46.60%	16.27%
11	Laboratory rules do not stick on the walls of the laboratory.	43.70%	26.04%	30.26%
12	The teacher educator does not listen our lab activities.	46.03%	40.03%	13.94%
13	The teacher educator does not give solution for our doubts.	19.09%	28.32%	52.59%
14	Absence of lab assistant.	52.15%	12.10%	35.75%
15	Teacher educator does not correct the findings immediately.	15.17%	36.31%	48.52%
16	Teacher educator does not demonstrate all the zoology experiments.	26.23%	17.36%	56.41%
17	Teacher educator does not demonstrate all the botany experiments.	21.13%	12.30%	68.57%
18	Absence of psychological factors about the student's aptitude.	42.50%	18.14%	39.36%
19	Teacher educator does not teach first aid knowledge.	37.07%	28.30%	34.63%
20	Teacher educator does not stimulate the learning by doing.	14.34%	25.20%	60.46%

The above table shows the item-wise analysis of level of problem faced by the Biological Science B.Ed.,, students while doing the practical's in laboratory.

41.42% of Biological Science B.Ed.,, students stated there exists a problem to a great extent to learn the Biological Science practical's when the administration does not give importance and 35.24% to some extent. 62.20% of B.Ed.,, students responded Problem occurs to a great extent to learn the experiments when the administration does not give enough time and 24.27% stated to some extent. 45.42% of B.Ed.,, students stated, there exist difficulties to a great extent to understand the practical's when the teacher educator does not give importance for practical's and 48.34% stated to some extent.

63.30% of B.Ed.,, students agreed there is a difficulty in completing the experiments whenever intermittent power cut occurs to a great extent in the laboratory and 18.11% stated to some extent. 53.20% of B.Ed.,, students stated due to absence of proper space for doing the Zoology experiments individually, there exists a problem to a great extent and 32.15% stated to some extent.

70.43% of B.Ed.,, students responded due to the absence of adequate apparatus for individual B.Ed.,, students, there occurs problem to a great extent for doing the experiments and 15.36% to some extent. 65.11% of B.Ed.,, students stated that there is a difficulty to a great extent in carrying out the hazardous experiments in the lab because of absence of safety dress and 21.30% stated to some extent. 51.35% of B.Ed.,, students opined that, difficulties occur to a great extent to understand the procedure of experiments because of absence of laboratory manuals and 26.27% stated to some extent.

42.10% of B.Ed.,, students stated due to the absence of records, difficulties occur to a great extent to write the result of experiments and 37.25% to some extent. 37.13% of B.Ed.,, students stated there exists a problem to understand the experiments, because of the teacher educator does not demonstrate all the experiments to a great extent and 46.60% stated to some extent. 43.70% of B.Ed.,, students said that, difficulties arise to a great extent in following the rules because the laboratory rules are not pasted on the walls of the laboratory and 26.04% stated to some extent but 30.26% of B.Ed.,, students stated there are no difficulties arise to follow the laboratory

rules because it is pasted on the walls.

46.03% of the B.Ed.,, students stated, the teacher educator does not monitor their lab activities, there exists a confusion to a great extent when doing the experiments and 40.03% stated to some extent. 19.09% of B.Ed.,, students responded the teacher educator does not give solution for their doubts when doing the practical's there occur difficulties to a great extent and 28.32% to some extent but 52.59% of B.Ed.,, students stated the teacher educator's gives solution for their doubts. 52.15% of B.Ed.,, students stated due to the absence of lab assistant, there exists a problem to a great extent to find the required instruments for a particular experiment and 12.10% stated to some extent but 35.75% of B.Ed.,, students agreed there is no problem to find the instruments for particular experiment absence of lab assistant.

17.17% of B.Ed.,, students stated as teacher educator does not correct the wrong findings immediately, there occur difficulties to a great extent to find the result of an experiment and 36.31% to some extent but 48.52% stated that the teacher educators correct the wrong findings immediately. 28.23% of B.Ed.,, students responded teacher educator does not demonstrate all the Zoology experiments present in the school books, there exists a problem to a great extent to do the practical's and 17.36% to some extent but 56.41% of B.Ed.,, students stated that the teacher educators demonstrate all the Zoology experiments present in the school books. 21.13% of B.Ed.,, students stated the problem occurs to a great extent to do the practical's when teacher educator does not demonstrate all the Botany experiments present in the school books and 12.30% stated to some extent but 68.57% of B.Ed.,, students stated that the teacher educators demonstrate all the Botany experiments present in the school books.

42.50% of B.Ed.,, students responded due to the absence of psychological factors about the students aptitude, there exists a confusion to a great extent to teach practical's among them and 18.14% to some extent but 39.36% of B.Ed.,, students stated there is no confusion to teach practical's among the school students because they know the psychological factors about the students aptitude. 37.07% of B.Ed.,, students agreed as teacher educator does not know first aid knowledge, they have fearness when doing the practical's in laboratory to a great extent and 28.30% to some extent but 34.63% of B.Ed.,, students agreed they do not have

feerness when doing the practical's because the teacher educators have first aid knowledge. 14.34% of B.Ed.,, students stated as teacher educator does not stimulate the learning by doing, difficulties occur to a great extent to find a right way to rear the scientific attitude among the school students and 25.20% stated to some extent but 60.46% of B.Ed.,, students stated the teacher educator stimulate the learning by doing activities so there are no difficulties to find a right way to rear the scientific attitude among the school students.

FINDINGS

From the percentage scores, the Biological Science B.Ed.,, students faced problems at above average level to a great extent are, 62.20% stated problems occur to learn the experiments when the administrator does not give enough time. 63.30% stated there is a difficulty in completing the experiment whenever intermittent current cut occurs in the laboratory.53.20% stated absence of proper space for doing the zoology experiments individually there exists a problem. 70.43% stated due to absence of adequate apparatus for individual B.Ed.,, student there occurs problem for doing experiments. 65.11% stated there is difficulty in carrying the hazardous experiments in the lab because of absence of safety dress. 51.35% stated difficulties occur to understand the procedure of experiments because of absence of laboratory manuals and 52.15% stated due to absence of lab assistant there exists a problem to find the required instruments for particular experiment. 52.59% stated, the teacher educator gives solution for their doubts when doing the practical's in the lab. 56.41% stated the teacher educator demonstrates all the Zoology experiments present in the school books. 68.57%% stated the teacher educator demonstrates all the Botany experiments present in the school books.

Table 2: Distribution of percentage scores indicating the level of problems faced by the biological science B.Ed., students of different demographic variables :-

CATEGORY		PERCENTAGE SCORES OF PROBLEMS (%)
TYPE OF MANAGEMENT	GOVERNMENT	16.48%
	GOVERNMENT AIDED	37.32%
	PRIVATE	46.20%
COLLEGE CATEGORY	CO-EDUCATION	55.63%
	WOMEN'S	44.37%
	RURAL	41.13%
LOCATION OF COLLEGE	URBAN	18.28%
	SEMI RURAL	17.44%
	SEMI URBAN	23.15%

The above table shows that the percentage scores of level of problems faced by the Biological science B.Ed.,, students while doing the practical's in laboratory based on different demographic variables.

The percentage scores of level of problems faced by the Biological science B.Ed.,, students of different types of management, 16.48% of problem faced by the government college B.Ed.,, students, 37.32% of problem faced by the government aided college B.Ed.,, students, 46.20% of problem faced by the private college B.Ed.,, students.

The percentage scores of level of problems faced by the Biological science B.Ed.,, students of different college categories, the co-education college B.Ed.,, students faced 55.63% of problems and women's college B.Ed., students faced the problems of 44.37%.

The percentage scores of level of problems faced by the Biological science B.Ed., students of different location of colleges, 41.13% of level of problem faced by the rural colleges B.Ed., students. The urban college B.Ed., students faced the problems of 18.28%. The B.Ed., students of semirural colleges faced the problems of 17.44%. The semi urban college B.Ed., students faced the problems of

23.15%.

FINDINGS

From the percentage scores of level of problems faced by the Biological Science B.Ed., students while doing the practical's in the laboratory based on different types of management, the government colleges are 16.78%, the government aided colleges are 37.32% and the private colleges are 46.20%. Based on the different college categories, the Co-education colleges are 55.63% and the women's colleges are 44.37%. Based on the different location of the colleges, the rural colleges are 41.13%, the urban colleges are 18.28%, the semi rural colleges are 17.44% and the semi urban colleges are 23.15%

RECOMMENTATIONS

Recommendations are made to improve the utilization of laboratory resources in the B.Ed., colleges.

1. In order to reduce the Biological Science B.Ed., students problems in laboratory to recruit the qualified and dedicated lab assistant to work in B.Ed., colleges.
2. Re-orientation of Science teacher educators on the need to increase Biological Science B.Ed., student's exposure to hand-on Experience.
3. Professional commitment and dedication on the part of Biological science teacher Educators to incorporate class demonstration in to their teaching.
4. The frequency of Scheduled practical sessions should be increased especially for B.Ed., colleges with enough qualified teacher educators.

CONCLUSION

Practical work forms an integral part of teaching and learning in Biological science. If Biological science B.Ed., students experience problems are not overcome, they will be discouraged from doing practical work. If practical work is added as an integral part of the teaching and learning process scientific concepts, skills and values will surely be acquired by Biological science B.Ed., students and this will enhance their performance in science.

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