



## ORIGINAL RESEARCH PAPER

## Education

### A COMPARATIVE STUDY ON PERCEPTION TOWARDS PHYSICS LABORATORY ENVIRONMENT OF GOVERNMENT AND PRIVATE COLLEGE UG – PHYSICS STUDENTS

**KEY WORDS:** Perception, Physics laboratory environment, College Students

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#### ABSTRACT

This research article briefly describes the perception towards physics laboratory environment of government and private college U.G students. In order to study the problem, the survey method was used to collect the data. The population of the present investigation is all the under graduate physics students studying in Tirunelveli District. From the population, 198 students were randomly selected as the sample for the study. The finding reveals that the level of perception towards physics laboratory environment of government and private college U.G students are found to be moderate. The research reveals that there is no significant difference between government and private college students in their perception towards physics laboratory environment.

#### Introduction

“Without Laboratories men of science are soldiers without arms”  
- Louis Paster

Science plays a major role in inculcating hope for progressive and continuous welfare. The strength of a modern economy depends on the strength of its industry and industrial development. In turn; it depends upon technology that in turn depends on the application of new scientific knowledge. At the same time the nation's progress, welfare and prosperity also depend on a rapid, planned and sustained growth in the quality and extent of education and research in science and technology. In the present century we are able to see the development of technology in various fields of science. In such situation, laboratory work is essential in the study of physics. The current impetus for changes in laboratory instruction stems from new research on student learning and technology, as well as changes in the overall goals of physics instructors. A conscious distinction should be made between the laboratory exercises and lecture demonstrations. The laboratory exercises provide critical experience with phenomena under the control of the instructor. The lecture demonstrations help the student to decide how to design and conduct the experiment to acquire the outcome. The digital computer is an important tool for an inquiry-based course in physics because it has become the most universal tool of inquiry in scientific research [1]. In such a situation, laboratory environment is the place which provides an opportunity for the young and energetic learners to develop their scientific temper and gain confidence in their ability to “troubleshoot” problems in their life. The 21st century learners are interested in doing than learning give them an environment to develop their scientific skills.

“Tell me and I’ll forget, Show me and I may remember, involve me and I learn”

-Benjamin Franklin

#### Need and Significance of the Study

Physics is a complex structure of concepts, hypotheses, theories, and observations that are interrelated in such a way that it is often difficult to separate inferences based on theory from direct observations based primarily on laboratory experiments [2]. Students should understand that experimental evidence is the basis of our knowledge of the laws of physics and that is not merely a collection of equations and textbook problems. The majority of students enrolled in introductory physics at both the high-school and college level do not have sufficient concrete experience with everyday phenomena to understand the subtle interplay between observation and the construction of physics theories. The processes of observing phenomena, analyzing data, and developing qualitative verbal models and mathematical models to explain observations afford students a unique opportunity to relate concrete experience to scientific theories. Thus, there is a need to develop the laboratory environment facilities in under

graduate colleges which in turn provide them a chance to develop their scientific skills and they get an opportunity to implement their ideas to innovate new inventions. Environment and involvement can develop the student's interest in the science field and may be in future many scientists can be developed from today's classrooms.

“The Science of Today is Technology of Tomorrow”

-Edward Teller

#### Objective

The researcher has framed the following objective for the present study:

1. To find out the level of perception towards physics laboratory environment of under graduate students with respect to type of college.

#### Hypothesis

1. There is no significant difference between government and private college under graduate students in their perception towards physics laboratory environment.

#### Methodology

The researcher used the survey method for the present study. For data collection, the investigator used the standard tool of “Physics Laboratory Environment scale” comprises of 26 questions, which was developed and validated by Anitha Malarvizhi (investigator) and Anandaraj (Research supervisor) in 2016. The investigator has selected the sample by random sampling technique for the present study. It comprises of 198 college students studying in Tirunelveli District. The data were analyzed using percentage analysis and ‘t’ test.

#### Analysis of the Data

The data were subjected to statistical treatment leading to the findings which may satisfy the requirements of the objectives of the study.

**Table 1: Level of perception towards physics laboratory environment of under graduate students with respect to type of college**

Type of College	Low		Moderate		High	
	No	%	No	%	No	%
Government	24	19.4	78	62.9	22	17.7
Private	5	6.8	65	87.8	4	5.4

It is inferred from the above table that 19.4% of government college students have low, 62.9% of them have moderate and 17.7% of them have high level of perception towards physics laboratory environment. 6.8% of private college students have low, 87.8% of them have moderate and 5.4% of them have high level of perception towards physics laboratory environment.

**Ho1:** There is no significant difference between government and private college under graduate physics students in their perception towards physics laboratory environment.

**Table 2: Difference between government and private college under graduate physics students in their perception towards physics laboratory environment**

Government (N=124)		Private (N=74)		Calculated 't' value	Remarks
Mean	SD	Mean	SD		
96.74	13.721	97.03	9.513	0.172	NS

(at 5% level of significance the table value of 't' is 1.96, NS- Not Significant)

It is inferred from the above table that there is no significant difference between government and private college under graduate students in their perception towards Physics laboratory environment.

### Findings and interpretation

**The major findings derived from the study are:**

1. The level of perception towards physics laboratory environment of under graduate students is found to be moderate with respect to type of college.
2. There is no significant difference between government and private college students in their perception towards physics laboratory environment.

### Conclusion

The purpose of this research is to study the perception towards physics laboratory environment between government and private college under graduate physics students. This research found that there is no significant difference between the government and private college in their perception towards physics laboratory environment. It may be due to the facilities provided in both the private colleges and government colleges are similar. All the type of colleges understands about the need and importance of laboratory usages and they provide the required facilities to the college students. Finally I conclude that, Laboratory Environment provides the students to develop their scientific skills, peer group understanding and leadership quality. The parents and the professors must give them some moral support and special care to the students who are in need to develop their scientific skills. All the colleges must be modified with all the facilities like good laboratory, smart boards and internet connections in the college laboratory, library and well structured class rooms. Science exhibition can be conducted to improve the scientific skills of the students which in turn create the understanding among the peer groups and develop their leadership quality. The professor should identify the students who find difficulty in carrying out the practical's. The professor should correlate the classroom activities with the laboratory activity. The college students can be motivated to do some innovation in the field of Physics which in turn produces more scientists. Opportunities can be provided for the young learner's to develop their scientific skills.

"Science and Everyday Life cannot and should not be separated"  
– **Rosalind Franklin**

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