
A STUDY ON BIOLOGY LABORATORY INVOLVEMENT
OF HIGHER SECONDARY STUDENTS AND TO THEIR
ADJUSTMENT

G. Govindharajan* & Dr. R. Babu**



**Research Scholar, Department of Education, Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu- 608002, India.*

***Professor, Department of Education, Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu- 608002, India.*

ABSTRACT

The aim of this study is to survey the Biology laboratory involvement and adjustment of higher secondary students. Govindharajan and Babu's Biology laboratory involvement Scale and Sinha and Singh's Adjustment Inventory have been administered to a random sample of 735 students. In this study the higher secondary students' attitude towards the study of biology has been found to be high. And they are well adjusted to the academic environment. Also, there is a positive and significant relationship between Biology laboratory involvement and adjustment.

INTRODUCTION

Biology means the study of living things. Biologists investigate animals, plants and microbes in many different ways and in a huge range of scales from molecules and cells to individual organisms, populations and ecosystems. During the past few decades, the study of biology has undergone rapid change and has had a significant

impact on the way we live. We are now able to produce antibiotics and vaccines, grow disease resistant crops, transplant organs and manipulate genes. Biologists, today, are actively researching solutions to vital concerns such as increasing world food supply, improving and protecting our environment and conquering disease. We

need to know how micro-organisms, plants and animals work and how they interact on land and in the sea and fresh waters. Of increasing importance to us is global climate change and how this affects the living world.

The courses will help to prepare one for a career in biology, be it in biodiversity, biosecurity or biotechnology. Everyone will find the courses exciting, challenging, and up-to-the minute as all concepts are actively engaged in research in some aspect of biological sciences. The laboratory activities lead good and favourable attitude as well high achievement. So biological laboratory and its activities are the target of the survey.

Adjustment consists of psychological processes by means of which the individual manages or cope up with various demands or pressure, both internal and external. Adjustment to the environment and self constitute the basis of personality development. The extent to which an individual is liable to achieve a successful life, adjustment depends on

- a) The environment stimuli to which he/she is successively exposed during his life span.
- b) Her/His inherited or acquired power to make changes within himself/herself that serve as the basis of constructive thinking.

The adjustment is the behavior that permits us to meet the demands of the environment. As an attempt to meet the demands of the environment, individuals either try to change the environment or change their own attitudes. This is achieved by having a wealth of models to imitate so that they learn many ways of influencing the environment; interpreting experiences in such a way that they perceive solutions to problems which do not arouse negative emotions such as fear and anger; believing

in their own abilities to achieve desired reinforcers, being able to regulate their own behavior so that they bring about the desired effects by changing the environment or creating new environment so that reinforcers become available.

OBJECTIVES OF THE STUDY

The following are the objectives of the present study

1. To study the level of Biology laboratory involvement of higher secondary students.
2. To study the level of adjustment of higher secondary students
3. To study the significance of the difference in respect of Biology laboratory involvement, if any between
 - a. Male and Female students
 - b. Urban and rural school students
 - c. Choice of course - Personal Choice/ Parental Choice
4. To study the level of adjustment of higher secondary students
 - a. Male and Female students
 - b. Urban and rural school students
 - c. Choice of course - Personal Choice/ Parental Choice
5. To study the significant relationship if any between Biology laboratory involvement and adjustment.

HYPOTHESES OF THE STUDY

The following are the hypotheses of the present study

1. The biology laboratory involvement of higher secondary students is low.
2. The adjustment of the higher secondary students is low

3. There is no significant difference between the following sub samples in respect of the attitude towards the study of biology laboratory involvement of higher secondary students
 - a. Male and Female students
 - b. Urban and rural school students
 - c. Choice of course - Personal Choice/ Parental Choice
4. There is no significance difference between the following sub samples in respect of the adjustment of higher secondary students
 - a. Male and Female students
 - b. Urban and rural school students
 - c. Choice of course - Personal Choice/ Parental Choice
5. There is no significant relationship between Biology laboratory involvement and adjustment of higher secondary students.

METHOD

Sinha and Singh's *Adjustment Inventory for School students* (1984) and Govindararajan and Babu's *Biology Laboratory Involvement scale* (2013) were administered to a random sample of 735 higher secondary students from selected higher secondary schools in three districts of Tamilnadu State. Sinha and Singh's inventory has 60 items, 20 items each in three different areas such as emotional, social and educational adjustment with yes/no type answering. Govindarajan and Babu's scale have 20 items out of which 17 items are positive and 3 items are negative, covering different areas related to the study of biology with a five point scale type answering. Scoring has been done by using the scoring keys of the respective tools. The scores of the 735 samples were fed into the computer. The means and standard deviations were calculated. The correlation between the variables was computed. The test of significance was applied to find out the differences between the sub samples.

Table - 1 Mean and standard deviation for Biology laboratory involvement score of whole group

Variables	Mean	Standard Deviation
Biology laboratory involvement	133.68	18.61

It is seen from the above Table 1 that the mean score of biology laboratory

involvement of higher secondary students is 133.68, which shows the level as high.

Table 2 Showing Mean, SD and t-test for students' Biology laboratory involvement scores of sub samples

Variables	N	Mean	SD	t/F-value	P- Value
Gender	Boys	330	130.27	17.96	4.55 Significant at 0.01 level
	Girls	405	136.54	18.68	
Location	Urban	277	131.87	18.82	2.03 Significant at 0.01 level
	Rural	458	134.77	18.41	
Choice of Course	Personal Choice	125	136.94	17.60	2.24 Significant at 0.05 level
	Parental Choice	610	133.01	18.75	

From the table 4.7 the boys and girls, the girls (136.54) scored higher mean value than the boys (130.27). So, girls have high levels of Biology involvement than boys. Among the urban and rural, the rural area students (134.77) scored higher mean value than the urban area students (131.87). So, rural area students have a high level of Biology involvement than the urban area students. From the above table 4.7 it is found that the calculated 't' value is 4.55. The calculated 't' value (4.55) is significant at 0.01 level, which confirms that there is a significant difference between higher secondary student biology laboratory involvement on the basis of gender. Hence the stated hypothesis is rejected. To sum up the male and female differ significantly in their biology laboratory involvement. Also from the above table 4.7 it is inferred that the calculated 't' value is 2.03. The calculated 't' value (2.03) is significant at 0.05

level, which confirms that there is a significant difference between higher secondary student biology laboratory involvement on the basis of Students Residing Place.

With respect to the choice the students with Personal Choice scored higher mean value (136.94) than those with Parental Choice (133.01). So, the students with Personal Choice have a higher level of Biology involvement than those with Parental Choice. From the above table 4.19 it is concluded that the calculated 't' value is 2.26. The calculated 't' value (2.24) is significant at 0.05 level, which confirms that there is a significant difference between higher secondary student biology laboratory involvement on the basis of Choice of Course. Hence the stated hypothesis is rejected. To sum up the Personal Choice and Parental Choice differ significantly in their biology laboratory involvement.

Table - 3 Mean and standard deviation for Adjustment score of whole group

Variables	Mean	Standard Deviation
Adjustment	23.14	4.94

From the table 3, the mean score of adjustment is found 103.11, which shows the

higher secondary students have a high level of adjustment.

Table 4 Showing Mean, SD and t-test for students' Adjustment scores of sub samples

Variables	Sub Samples	N	Mean	SD	t- value	Level of significance
Gender	Boys	330	24.66	3.27	8.19	Significant at 0.05 level
	Girls	405	21.91	5.67		
Location	Urban	277	25.79	3.15	13.87	Significant at 0.01 level
	Rural	458	21.54	5.13		
Choice of Course	Personal Choice	125	22.56	5.02	1.42	Not Significant
	Parental Choice	610	23.26	4.92		

From above Table 4 the boys and girls, the boys (24.66) scored higher mean value than girls (6.21). So, boys have high levels of Adjustment than girls. Between urban and rural students, urban area

students (25.79) scored higher mean value than the rural area students (21.54). So, the urban area students have high levels of Adjustment than rural area students.

Regarding the Choice of Course students having Parental Choice (23.26) scored a higher mean value than Personal Choice students (22.56). So, the parental choice students have high levels of Adjustment than the personal choice of students. From the above table 4.19 it is concluded that the calculated 't' value is 1.42.

The calculated 't' value (1.42) is not significant at 0.05 level, which confirms that there is no significant difference between higher secondary students adjustment on the basis of Choice of Course. Hence the stated hypothesis is accepted. To sum up the Personal Choice and Parental Choice do not significantly differ in their adjustment.

Table - 5 Relationship between Biology laboratory involvement and adjustment of Higher Secondary Students

Variables	'r' value	Level of Significance
Biology laboratory involvement Adjustment	0.126	Significant

A cursory look at Table 5, the computed 'r' value 0.126 is significant. It suggests that there is a statistically significant relationship between the level of Biology laboratory involvement and adjustment of the higher secondary students.

CONCLUSION

Biology subject plays an important role in the entire life of a human. Involvement alone gives hundred percent success in one's life. It is referred that there is a significant difference between higher secondary students Biology laboratory involvement on the basis of gender. The result reported that there is a significant difference between higher secondary students Biology laboratory involvement on the basis of Students Location and Choice of Course. The result shows that there is a significant difference between higher secondary students' adjustment on the basis of gender and location. The result shows that there is no significant difference between higher secondary students' adjustment on the basis of Choice of Course. The computed 'r' value is significant and it suggests that there is statistically significant relationship between the level of Biology laboratory involvement and adjustment of higher secondary students.

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