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STUDY OF ACHIEVEMENT IN BIOLOGY IN RELATION TO SELF REGULATED LEARNING OF HIGHER SECONDARY STUDENTS

M. Manivannan and Dr. S. Kalaivani

[1]h.D., Research Scholar, Department of Education, Annamalai University, Annamalai Nagar-608002.
[2]Assistant Professor, Department of Education, Annamalai University, Annamalai Nagar-608002

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ABSTRACT

The purpose of the current study is to examine the effects of achievement in biology in relation to self regulated learning of higher secondary students. This study falls under descriptive research design. The sample of this study came from Higher Secondary Students of Cuddalore district. The participants in this study include 742 higher secondary students were selected by simple random sampling. Descriptive, Differential and Correlational were applied to the analysis of data and the results found that not significant interaction effect of self regulated learning on achievement in biology of higher secondary students. It found that achievement in biology and self regulated learning is average, there is significant difference in the achievement biology of higher secondary students with regard to gender and medium of study, there is significant difference in the self regulated learning of higher secondary students with regard to gender and medium of study and there is a significant and positive relationship between Achievement in Biology and Self-Regulated Learning of Higher Secondary Students.

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INTRODUCTION

Biological is the a Branch of science which deals with plant kingdom and animal kingdom the most evolved organism in the Animal kingdom if the human being. Human beings the Homo, Sapiens are the highest evolved organism on the planet earth. It is important subject as a divetly related to the survival needs of human Life. Biology has become the most active the most relavant and the most personal science one characterized by extraordinary rigor and predictive power (Moor, Johan, A. 1993).

Self-regulated learning is learning that is guided by metacognition (thinking about one‘s cognition), strategic action (planning, monitoring, and evaluating personal progress against a standard), and motivation to learn. “Self-regulated” describes a process of taking control of and evaluating one’s own learning and behavior. Students are self-regulated to the degree they are meta-cognitively, motivationally, and behaviorally active participants in their own learning process, where learning is viewed as an activity that students do for themselves in a proactive manner rather than as an indirect consequence to instruction.

*Corresponding author: **M. Manivannan**

Ph.D., Research Scholar, Department of Education, Annamalai University, Annamalai Nagar-608002.

Need and Significance of the Study

Achievement in biology is important because it reflects student learning and can be used to evaluate teaching methods. High achievement is linked to intrinsic motivation, better study habits, and a deeper understanding of concepts. At a broader level, the achievements of the science of biology are crucial for advancements in medicine, agriculture, and biotechnology, which improve human quality of life.

Self-regulated learning is crucial for higher secondary students because it improves academic performance, motivation, and lifelong learning skills, preparing them for the increased demands of higher education and the future workforce. It involves actively managing one’s own learning through goal-setting, monitoring progress, and adapting strategies, which leads to better time management, increased responsibility, and greater resilience.

Statement of the Problem

Study of Achievement in Biology in Relation to Self Regulated Learning of Higher Secondary Students.

Delimitations of the problem

The present study was delimited to 742 higher secondary students of Cuddalore District.

Operational Definitions

Achievement in Biology

Scores obtained by the student on the achievement test developed by the investigator on the selected chapter of biology syllabus proscribed by up board for class 11th students.

Self-Regulated Learning

Self-regulated learning refers to learners' beliefs about their capability to engage in appropriate actions, thoughts, feelings, and behaviors in order to pursue valuable academic goals while self-monitoring and self-reflecting on their progress toward goal completion.

Objectives of this Study

The Succeeding are the objectives or goals of the present study:

1. To study the level of Achievement in Biology of Higher Secondary Students.
2. To study the level of Self-Regulated Learning of Higher Secondary Students.
3. To study the any significant difference in the Achievement in Biology of Higher Secondary Students with respect to their gender.
4. To study the any significant difference in the Achievement in Biology of Higher Secondary Students with respect to their medium of study.
5. To study the any significant difference in the Self-Regulated Learning of Higher Secondary Students with respect to their gender.
6. To study the any significant difference in the Self-Regulated Learning of Higher Secondary Students with respect to their medium of study.
7. To study the any significant relationship between Achievement in Biology and Self-Regulated Learning of Higher Secondary Students.

Hypotheses of the Study

1. The level of Achievement in Biology of Higher Secondary Students is low.
2. The level of Self-Regulated Learning of Higher Secondary Students is low.
3. There is no significant difference in the Achievement in Biology of Higher Secondary Students with respect to their gender.
4. There is no significant difference in the Achievement in Biology of Higher Secondary Students with respect to their medium of study.
5. There is no significant difference in the Self-Regulated Learning of Higher Secondary Students with respect to their gender.
6. There is no significant difference in the Self-Regulated Learning of Higher Secondary Students with respect to their medium of study.
7. There is no significant relationship between Achievement in Biology and Self-Regulated Learning of Higher Secondary Students.

METHODOLOGY

Normative survey method was used in study. Data collection was done from higher secondary students of Cuddalore district, by simple random sampling technique. The sample consist 742 higher secondary students.

Tools Used

Two psychological tests were used to collect the data; one was Achievement in Biology Test constructed and validated by the Manivannan and Dr. S. Kalaivani (2025) and Self-Regulated Learning Scale (SRLS) developed by Sarbjit and Dr. Anita Nangia (2022).

Statistical Techniques

The data was analyzed by using Descriptive, Differential and Correlation Analyses was used to data.

Analysis and Interpretation

Descriptive Analysis

Hypothesis 1

The level of Achievement in Biology of Higher Secondary Students is low.

Table 4.1 Mean and Standard Deviation Scores for the Achievement in Biology

Variable	N	Mean	SD
Achievement in Biology	742	27.65	6.42

From table-1, the calculated mean and standard deviation for Achievement in Biology scores of the entire sample is found to be 27.65 and 6.42 respectively, the mean score lay in between (22-33). Hence, the framed hypothesis 1 is rejected and it is concluded that the level of Achievement in Biology is average of Higher Secondary Students.

Hypothesis 2

The level of Self-Regulated Learning of Higher Secondary Students is low.

Table 4.2 Mean and Standard Deviation Scores for the Self Regulated Learning

Variable	N	Mean	SD
Self Regulated Learning	742	67.46	12.12

From table-2, the calculated mean and standard deviation for Self-Regulated Learning scores of the entire sample is found to be 67.46 and 12.12 respectively, the mean score lay in between (60-90). Hence, the framed hypothesis 2 is rejected and it is concluded that the level of Self-Regulated Learning is average of Higher Secondary Students.

Differential Analysis

Hypothesis 3

There is no significant difference in the Achievement in Biology of Higher Secondary Students with respected to their gender.

It is seen from the table-3 that the 't' value calculated is 3.65, which is higher than the table value 1.96 at 0.05 level of significance. Hence, the framed hypothesis 3 is rejected and

Table 3. 't' test for Achievement in Biology Scores of Higher Secondary Students with respect to their Gender

Variable	Gender	N	Mean	SD	't' Value	Level of Significance at 0.05 level
Achievement in Biology	Male	347	25.74	5.29	3.65	Significant
	Female	395	29.24	7.12		

Table 4. 't' test for Achievement in Biology Scores of Higher Secondary Students with respect to their Medium of Study

Variable	Medium of Study	N	Mean	SD	't' Value	Level of Significance at 0.05 level
Achievement in Biology	Tamil medium	362	26.53	6.65	2.92	Significant
	English medium	380	29.30	7.42		

it is concluded that there is significant difference between male and female Higher Secondary Students with respect to their Achievement in Biology. It is also inferred that female students are having more achievement in biology than the male students.

Hypothesis 4

There is no significant difference in the Achievement in Biology of Higher Secondary Students with respect to their medium of study.

It is seen from the table-4 that the 't' value calculated is 2.92, which is higher than the table value 1.96 at 0.05 level of significance. Hence, the framed hypothesis 4 is rejected and it is concluded that there is significant difference between Tamil medium and English medium of Higher Secondary Students with respect to their Achievement in Biology. It is also inferred that English medium students are having more achievement in biology than the Tamil medium students.

Hypothesis 5

There is no significant difference in the Self-Regulated Learning of Higher Secondary Students with respected to their gender.

It is seen from the table-5 that the 't' value calculated is 3.22, which is higher than the table value 1.96 at 0.05 level of significance. Hence, the framed hypothesis 6(a) is rejected and it is concluded that there is significant difference between male and female Higher Secondary Students with respect to their Self-Regulated Learning. It is also inferred that female students are having more Self-Regulated Learning than the male students.

Hypothesis-6

There is no significant difference in the Self-Regulated Learning of Higher Secondary Students with respect to their medium of study.

It is seen from the table-6 that the 't' value calculated is 2.10, which is higher than the table value 1.96 at 0.05 level of significance. Hence, the framed hypothesis 6 is rejected and it is concluded that there is significant difference between Tamil medium and English medium of Higher Secondary Students with respect to their Self-Regulated Learning. It is also inferred that English medium students are having more Self-Regulated Learning than the Tamil medium students.

Correlation Analysis

Hypothesis 7

There is no significant relationship between Achievement in Biology and Self-Regulated Learning of Higher Secondary Students.

Table 5. 't' test for Self-Regulated Learning Scores of Higher Secondary Students with respect to their Gender

Variable	Medium of Study	N	Mean	SD	't' Value	Level of Significance at 0.05 level
Self-Regulated Learning	Tamil medium	362	66.22	11.29	2.10	Significant
	English medium	380	69.26	12.79		

Table 6. 't' test for Self-Regulated Learning Scores of Higher Secondary Students with respect to their Medium of Study

Variable	Medium of Study	N	Mean	SD	't' Value	Level of Significance at 0.05 level
Self-Regulated Learning	Tamil medium	362	66.22	11.29	2.10	Significant
	English medium	380	69.26	12.79		

Table 7. Co-Efficient of Correlation between Achievement in Biology and Self-Regulated Learning

Variables	N	'r' Value	Level of Significance
Achievement in Biology and Self-Regulated Learning	742	0.412**	Significant

**. Correlation at 0.01 level (2-tailed)

From the table-7, the obtained coefficient of correlation (r) between Achievement in Biology and Self-Regulated

Learning of High Secondary Students is found to be 0.412 which is significant at 0.05 ($p<0.05$). Hence the above stated null hypothesis is rejected at 0.05 level of significance and it is concluded that there is a significant and positive relationship between Achievement in Biology and Self-Regulated Learning of Higher Secondary Students, that is, Higher Secondary Students who are having more sense of Self-Regulated Learning have better Achievement in Biology.

Findings of the Study

- The Achievement in Biology is average of Higher Secondary Students.
- The Self-Regulated Learning is average of Higher Secondary Students.
- There is significant difference between male and female higher secondary students with respect to their achievement in biology.
- There is significant difference between Tamil medium and English medium of higher secondary students with respect to their achievement in biology.
- There is significant difference between male and female higher secondary students with respect to their Self-Regulated Learning.
- There is significant difference between Tamil medium and English medium of Higher Secondary Students with respect to their Self-Regulated Learning.
- There is a significant and positive relationship between Achievement in Biology and Self-Regulated Learning of Higher Secondary Students.

CONCLUSION

The present study was conducted on a sample of 742 higher secondary students of district Cuddalore of Tamil Nadu State with the purpose of studying the Achievement in Biology of higher secondary students in relation to Self-Regulated Learning. Based on the findings of the study, it can be concluded that the Achievement in Biology and Self-Regulated Learning are average. Furthermore, on the basis of results from correlation analysis, it is concluded that Achievement in Biology is significantly and positively correlated with Self Regulated Learning.

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