International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 04 Issue: 07 | July -2017 www.irjet.net p-ISSN: 2395-0072

A STUDY OF UNDERACHIEVEMENT IN SCIENCE IN RELATION TO PERMISSIVE SCHOOL ENVIRONMENT

Dr. Umesh Chandra Kapri*

**Associate Professor, Gold Field College of Education, Faridabad-121004*

Abstract - *Permissiveness indicates a school climate in which students are provided opportunity to express their views freely and act according to their desires with no interruption from teachers. The research report is an excerpt of Ph.D. thesis which shows correlation between underachievement in science and permissiveness dimension of school environment. The study was carried out on 400 underachievers in science of 9th standard students selected from 8 Govt. and 8 Govt.-Aided secondary schools of Faridabad district of Haryana. Achievement test in science and intelligence test were administered on more than 1600 students to select underachievers in science at secondary school level. Mean, standard deviation, t- test and Pearson's correlation were used for analysis and interpretation of the data. The result revealed that there is significant correlation between underachievement in science and permissive school environment of secondary school students. Facilitating better permissive school environment means enhancing scholastic achievement in science.*

Key Words*: *School Environment; underachievement; permissiveness.

1. INTRODUCTION

Every student has a unique nature as regard to capabilities, attitude, personality characteristics and interests. So it is necessary to identify the talents in our children and to provide them suitable opportunities, which will enable them to develop their potentials in the direction of higher achievement as well as their position as a world leader. Abraham Lincoln once said that, "we cannot strengthen the weak by weakening the strong. By bringing the top down does not mean that the ones in bottom will go up". All children have the right to learn in their schools each day. As educators, we have a moral obligation to respond to individual differences, including those of the underachievers. Every child is born with certain natural and inherited endowments. These endowments are modified and sublimated for making the child a useful member of society.

2. UNDERACHIEVEMENT

Underachievement refers to those who are average or above average in intelligence but securing less than average in classroom achievement test. The individuals whose level of performance or achievement is lower than his / her potential are termed as underachievers and the phenomenon is called as underachievement. Rimm (2002) states that underachievement is simply defined as a discrepancy between expectation and performance and some index of his/her actual ability, such as intelligence, achievement or creativity scores or observational data. Tannenbaum (1993) stated that there appears to be only one trait that determines underachievers from achievers and that is that one group succeeds at school and the other does not. He further states that underachievement is caused by an absence of, or a breakdown of the linkage between promise and fulfillment. To understand the concept of under achievement, let us understand the four patterns, which emerge out in terms of achievement:

Underachievement: when actual achievement is less than aptitude based expectation.

Overachievement: when actual achievement exceeds aptitude based expectation.

High achievement: when actual achievement is commensurated with aptitude based high expectation.

Low achievement: when actual achievement is commensurated with aptitude based low expectation.

3. SCHOOL ENVIRONMENT

School Environment is the psycho-social climate of school as perceived by the pupils. It includes the quality and quantity of the cognitive, emotional and social support that has been available to the students during their school life. A child's school experience exerts a potent influence on his developing personality patterns. The school shares with the home the responsibility of helping a young person to achieve those behaviour characteristic that can ensure for him make satisfactory adjustment to the demands on him of the various areas of his present and future life activities. There are six dimensions of school environment. A brief discussion of various dimensions of school environment inventory developed by K.S. Mishra is given below:

Creative Stimulation*:* It refers to teacher's activities to provide conditions and opportunities to stimulate creative thinking.

Cognitive Encouragement: it implies teacher's behavior to stimulate cognitive development of student by encouraging his actions of behaviors.

Acceptance: it implies a measure of teacher's unconditional love, recognizing that student have the right to express feeling, to be unique, and autonomous individuals. Teachers accept the feeling of students in a non-threatening manner.

Permissiveness: it indicates a school climate in which students are provided opportunity to express their views freely and act according to their desires with no interruption from teachers.

Rejection: It refers to a school climate in which teachers do not accord recognition to student's rights to deviate, to act freely and to be autonomous persons.

Control: It indicates autocratic atmosphere of the school in which several restrictions are imposed on students to discipline them.

4. NEED AND SIGNIFICANCE OF THE STUDY

School plays an important role in moulding the personality of children because a significant part of a child's life spent in school between the ages of 6 and 18 years. Hence he continues the process of liking and disliking, conforming and rebelling, acquiring a conception of the world and himself. Hence, there is a need to study the relationship between underachievement in science and the school environment. In a permissive school climate students should be provided opportunity to express their views freely and act according to their desires with no interruption from teachers.

Underachievement, as a psychological concept, refers to a loss of potential man-power. Hence underachievement signifies that the student has not made the most of his abilities. It denotes that despite high potentialities, the students are lagging behind in academic achievement. This indeed is a great challenge which has to be met with great care because it involves serious loss to the individual leading to self-undervaluation, reflections of which are seen in unhappiness, frustration and revolt.

Science occupies an important place in the school curriculum because of its utilitarian, disciplinary, practical aesthetic and cultural values. It is a matter of common experience of teachers teaching science that although many students have the capacity to learn well, yet, their actual performance in science examinations is poor. Thus a lot of time and effort of the schools are used for helping students to achieve better in their scholastic endeavours.

Any society cannot remain indifferent to this problem of underachievement, if it is concerned with its human resource development. Wholesome development of the child is the primary concern of any educational system. The academic development of the individual is the most important component of wholesome development.

5. OPERATIONAL DEFINITION OF KEY TERMS

Underachievement: Underachievement refers to the case that a student attains a level of achievement that is below his or her potential. Underachievement in science means that the student has scored at least 1σ less marks in Achievement Test in Science as compared to his/her score in the Intelligence test.

School Environment: It refers to the psycho-social climate of school as perceived by the pupils. It includes the quality and quantity of the cognitive, emotional and social support that has been available to the students during their school life. **Permissiveness:** It indicates a school climate in which students are provided opportunity to express their views freely and act according to their desires with no interruption from teachers.

6. STATEMENT OF THE PROBLEM

"A Study of Underachievement in Science in Relation to Permissive School Environment of Secondary school students".

7. OBJECTIVES

1) To study the Permissive school environment of the underachievers in science studying in Secondary schools.
2) To find significance difference between male and female underachievers in science w.r.t. Permissive environment of Secondary schools.
3) To study the correlation between underachievement in science and permissive school environment.

8. HYPOTHESES

1) There is no significant difference between the male and female underachievers in science studying in Secondary schools with respect to permissiveness dimension of school environment.
2) There is no significant difference between the underachievers in science studying in Government and Government- aided Secondary schools.
3) There is no significant correlation between underachievement in science and permissive school environment.

9. METHOD AND PROCEDURE

The present research work was a descriptive study which was correlational in nature. It is concerned with functional relationship between two or more variables. The expectation from correlational research is that if a variable is found to be systematically associated with another variable, one can predict the future phenomena. The variables involved in the

proposed study were underachievement in science, permissive school environment. The investigator has found out the correlation among these variables.

10. POPULATION AND SAMPLE FOR THE STUDY

Population for the present study comprises of students studying in secondary schools of District Faridabad of Haryana. The sample for the present study comprises of 400 students studying in class IX from sixteen secondary schools (eight Government and eight Government-Aided) of Faridabad district selected randomly. Almost 25 students were selected by cluster sampling from each of the sixteen secondary schools.

11. TOOLS USED

The investigator has used the following tools for the collection of relevant data.

1. Achievement Test in Science prepared and standardized by the investigator to know the achievement of the students in science subject.
2. Advanced Raven Progressive Matrices was used to measure the intelligence of secondary school students.
3. School Environment Inventory (SEI) developed by K.S.Mishra (2002) was used to measure the psycho-social climate of school as perceived by the pupils.

12. PROCEDURE OF DATA COLLECTION

The study has been primarily aimed at determining the study of underachievement in science in relation to permissiveness dimension of school environment of secondary school students. The achievement test in science prepared and standardized by the investigator himself was administered on class IX students of various Government and Government-Aided Schools of Faridabad, to measure their achievement in Science. Thereafter, Advance Progressive Matrices Set I and Set II developed by J.C. Raven was administered on same students to measure their intelligence. All those students who achieved at least 1 δ less score in achievement test in science in comparison to the score achieved in intelligence test were selected as sample for the study. After that School environment inventory developed by K. S. Mishra was administered on the identified sample to collect the data regarding the permissiveness dimension of school environment.

13. STATISTICAL TECHNIQUES USED FOR ANALYSIS OF DATA

The statistical tools such as Mean, standard deviation, 't-ratio' and Pearson's correlation coefficient were Coefficients of correlations (r) used in quantitative analysis of data.

14. DELIMITATIONS OF THE STUDY

The study was delimited to the students of secondary classes belonging to Government and Government- aided schools located in Faridabad district of Haryana state.

15. ANALYSIS AND INTERPRETATION

According to the dictionary of education, "Analysis is the cognitive process which involves the breaking down of complex concepts, systems and process into their component parts and scrutinizing the relationship existing among them"

Study of School Environment: Table-1 shows overall mean and standard deviation attained by underachievers in science of Government-Aided and Government secondary school students in permissiveness dimensions of school environment.

Table-1: School Permissiveness (SD) Environment Statistics

Norms	Boys	0-15	16-24	Above 24	Total	Mean	S.D.
	Girls	0-14	15-24	Above 24			
Level		Low	Average	High			
Boys of Govt.-Aided Schools	Number	16	54	30	100	21.96	5.24
	Percent	16	54	30	100		
Girls of Govt.-Aided Schools	Number	5	69	26	100	21.48	4.86
	Percent	5	69	26	100		
Boys of Govt. Schools	Number	25	58	17	100	19.27	4.91
	Percent	25	58	17	100		
Girls of Govt. Schools	Number	10	67	23	100	21.22	4.55
	Percent	10	67	23	100		
Grand Total	**Number**	**56**	**248**	**96**	**400**	**20.98**	**5.00**
	Percent	**14**	**62**	**24**	**100**		

As evident from table -1 that out of 400 underachievers in science only 56 i.e.14% students fell under low level of permissiveness while 96 (24%) respondents registered high level of permissiveness in their schools. A majority of students 248 out of 400 i.e. 62% were found to be enjoying at average level of school permissiveness. Among the four groups' boys of Government-Aided schools reported the highest level of permissiveness with mean 21.96, while the mean score of permissiveness of boys of Government schools was calculated the least with mean of 19.27. The mean score of permissiveness school environment of girls of Government-Aided schools was calculated to be 21.48 and

mean score of permissiveness school environment of girls of Government schools was found to be 21.22. Therefore it can be interpreted that Government-Aided schools provide better permissive environment to its students in comparison to Government schools.

Comparison of Permissiveness Dimensions of School Environment: Table-2 presents a summary of the comparison made between male and female underachievers in science with respect to mean, standard deviation and t-ratio of the Permissiveness dimension of school environment.

Table-2: Comparison between Male and Female Underachievers in Science on Permissive School Environment

Dimensions	Male N=200		Female N=200		t-ratio	Remarks
	Mean	S.D.	Mean	S.D.		
Values	20.61	5.25	21.35	4.71	1.484	Not Significant

As depicted in table-2, mean of male underachievers in science in term of permissiveness level of school environment was found to be 20.61 with standard deviation 5.25 and for female underachievers in science it was 21.35 with standard deviation 4.71. The combined t-ratio between male and female underachievers in science in term of permissiveness school environment was found to be 1.484 which is not significant at both (0.05 and 0.01) levels.

Table-3 presents the summary of the comparison made between Government and Government-Aided Secondary school students, in relation to permissiveness dimension of school environment;

Table-3: Permissive school environment between Underachievers in Science of Government and Government-Aided Secondary Schools

Permissive school Environment	Govt.- Aided (N=200)		Government (N=200)		t-ratio	Remarks
	Mean	S.D.	Mean	S.D.		
Values	21.72	5.06	20.24	4.83	2.992	Significant

The mean in terms of permissiveness level of school environment of underachievers in science of Government-Aided secondary school students was found to be 21.72 and for Government school students, it was 20.34. The combined t-ratio for permissive school environment between underachievers in science of Government-Aided School students and Government school students was found to be 2.992 which is significant at both (0.05 and 0.01) levels of significance. It implies that Government-Aided School Students enjoyed better permissive school climate in comparison to the underachievers in science of Government Schools.

Pearson's Coefficient of Correlation between Underachievement in Science and permissive School Environment: Table-4, shows the correlation coefficient between underachievement in science and the permissive school environment with respect to male, and female underachievers in science of government and Government-aided secondary schools.

Table-4: Coefficient Of Correlation between Underachievement in Science and Various Dimensions of School Environment

Categories	Number of underachievers	Coefficient of correlation	Remarks
Male	400	0.871	Significant
Female	400	0.476	Significant
Government Schools	400	0.004	Not significant
Government – Aided Schools	400	0.871	Significant

The Pearson's correlation coefficient between underachievement in science and permissiveness level of school environment of secondary schools male students was found to be 0.871 which is significant at both (0.05 and 0.01) levels.

The coefficient of correlation between underachievement in science and permissiveness school environment of secondary schools female students was found to be 0.476 which is significant at both (0.05 and 0.01) levels.

No significant correlation was found between underachievement in science and permissiveness dimension of school environment of the students studying in Government Secondary schools.

A significant correlation 0.871 was found to be between underachievement in science and permissiveness dimension of school environment of the students studying in Government-Aided Secondary schools.

16. MAIN FINDINGS OF THE STUDY

The important findings that have emerged out after analysis and interpretation of data are given below:

- Among the four groups, boys of Government schools perceived the least permissiveness level of school environment while boys of Government-Aided schools reported the highest permissiveness school environment.
- There is significant correlation between underachievement in science and Permissiveness, levels of school environment of secondary school students.
- A significant correlation was found between underachievement in science and permissive of school environment of the male underachievers in science.
- A significant correlation was found between underachievement in science and permissive school environment of the female underachievers in science.

- No significant correlation was found between underachievement in science and permissive environment of Government secondary schools.
- A significant correlation was found between underachievement in science and permissive environment of Government-Aided secondary schools.
- There is no significant difference between male and female underachievers in science of secondary schools with respect to permissiveness school environment.
- A significant difference was found between underachievers in science of Government-Aided and Government secondary schools with respect to permissiveness of school environment. Hence, it can be concluded that Government-Aided schools provide better conditions and opportunities in permissiveness to its students.

17. CONCLUSIONS

There is significant correlation between underachievement in science and school environment of secondary school students. Thus school environment affects the academic achievement of students. It means better the school environment better the achievement in science. Therefore, Permissiveness level of school environment should be enhanced. Efforts should be made to create better school environment to reduce underachievement in science. Teachers and learners must have clear understanding of objectives of teaching Science at the secondary school level. Science teachers at the secondary classes must give priority for the development of required objectives in their learners.

18. EDUCATIONAL IMPLICATIONS

The following educational implications may be suggested based on the results obtained in this study.

- The study reveals that there is a significant difference between permissive school environment of Government-Aided and Government secondary schools. A poor school environment leads to underachievement in Science. The school authorities and the teachers should provide good permissiveness to help the learners in developing reading skills, note-taking, concentration, memorization, using dictionaries, group discussion and examination-taking skills.
- Permissiveness is positively related to achievement in Science. In order to provide better permissive school environment to students, they should be given an atmosphere of friendliness and feeing that they are secure. An atmosphere of calmness, ease, sympathy, sociability, kindness and cooperativeness is to be created in the school.
- Many investigators such as Dandapani, Fernandes, Kohli and Devinder and Dobbins found that such counseling sessions stimulate interest among underachievers, arouse desire for emulations, raise their level of aspiration and show consistent improvement in their achievement.
- Teachers and learners must have clear understanding of objectives of teaching Science at the secondary school level. Science teachers at the secondary classes must give priority for the development of required objectives in their learners.
- Some of the important facts such as Providing permissive School Environment, Development of Scientific Attitude among Students, Warm Teacher-Student Relationship etc are helpful enhancing the academic achievement in science of secondary school students.

19. SUGGESTIONS FOR FURTHER STUDIES

i. The present study was confined to the study of responses of the students only. This can be extended to study the responses of teachers, principal, parents etc. to have more comprehensive conclusions.

ii. A study can also be done to analyze the relationships between permissiveness dimensions of home and school environment.

iii. A study can also be done to reveal the importance and significance of better home and school environment on the coming life of students.

iv. The present study highlights many shortcomings on permissiveness dimensions of school environment. A study can be exclusively done on the permissiveness aspects of home environment and suggest various measures to bring improvement in school environment.

v. A study can also be done inclusively to inquire the various factors and elements in the school environment that contribute to raise achievement in science.

20. REFERENCES

1. Aggarwal, J.C (2006), Psychology of Learning and development, Shift Publication, Delhi.
2. Best, J.W. and Kahn, J.V. (2003), Research in education. Delhi: Prentice-Hall of India Pvt. Ltd.
3. Mandel, H. P., & Marcus, S. I. (1988), The Psychology of Underachievement. New York: John Wiley and Sons.
4. Mc Cuen (1960), Underachievement in Biology, Ph.D. Theses by H.V. Vamadevappa, (2006) Discovery Publishing House, New Delhi.

5. Mishra, K.S. (2002), School Environment Inventory. Ankur Psychological Agency, Lucknow.
6. Raven, J.C. (1960), Guide to the Standard Progressive Matrices, Sets, A, B, C, D and E, London, Lewis.
7. Reis, S. M., & McCoach, D. B. (2000), The Underachievement of Gifted Students: What do we know and where do we go? Gifted Child Quarterly, 44, 152–170.
8. Rimm, S.B., (2002), "Underachievement Syndrome, Causes and Cures" Hawker Brownlowe Education, Australia.
9. Thorndike, R.L. (1963), The Concept of over an Underachievement. New York: Bureau of Publications, Teacher's College, Columbia University.
10. Woodworth, R.S. and Marquis (1948), D.G. Psychology, 5th Ed, Henry Holt, New York.
11. Woolfolk, A.E. (1995), Educational Psychology, Boston: Allyn and Bacon.