Psychological Stress and Achievement of Senior Secondary Science Students of Different Types of Boards

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ABSTRACT *This study attempts to assess the psychological stress and achievement of senior secondary science students studying in schools recognized by different boards. A sample of 631 students was randomly selected from the schools recognized by different boards in Meerut province. They were administered Psychological Stress Scale for Science Students (PSSSS) developed by the researcher himself. PSSSS was constructed around 12 dimensions of psychological stress. Mean, S.D., and t-test were used to analyze the data. Results show that science students were found to be differed significantly on total psychological stress and achievement. Highest psychological stress was found in the students of UPB and lowest in the students of ISC, while highest achievement was found for the students of ISC and lowest for the students of UPB.*

Introduction

The present scenario is coming up with technological revolution, web technology and web culture. Naturally it is the achievement of people especially in the field of science besides humanities. It is well considered opinion proven rationally that science is the great potential factor for the development of country. Hence science education in every country occupies a significant emphasis. The very structured knowledge in science education demands good intellect people with scientific attitude and rationale mind. Difficulty in understanding of science experienced by students in general, fear of science and underachievement in science subjects are the common problems due to which students used to suffer. Science also exerts a number of additional demands on students. The science curriculum requires enormous commitment and hard work by students. The intense curriculum may produce stress on science student's life. The school setup, teacher's expectations, infrastructure facilities, modalities of teaching etc. promote the feeling of pressure associated with being in the science stream. Most of the time, science students have complain of dwelling in between their efforts for better achievement and teacher's/ parent's expectations. Even investing time and efforts they find it difficult and get easily stressed. It is being experienced by parents and teachers in schools that science students suffer from psychological stress which influence the achievement.

In the hope of preparing students for their future roles in science, it is important to identify stressful factors that may affect their successful development. One study identified the major academic stressors among college students to be tests, grade competition, time demands, professors and classroom environment, and career and future success (Murphy & Archer, 1996). Misra, et al., (2000) found that academic stress among college students varies across year in school and gender. Most of the studies in different responses to stress have been carried out in dental, medical, nursing, university and college students (Sinha, et al 2000, Lee et al 2002, Kuruppuarachchi, et al 2002, Ellison, 2004, **Polychronopoulou, Argy and Divaris, Kimon 2005,** Hussain, et al 2008, Kumar and Singh 2004, Kaplan, et al 2005, Chapell, et al 2005, Vijayalakshmi and Lavanya 2006, Nicholson 2009, and Hasan 2009). The researcher found that there is noresearch conducted particularly in Western U.P pertaining to this issue Therefore, it was decided to conduct a research

to examine this particular issue. In the present study, the researcher attempted to study the psychological stress and achievement among senior secondary sscience students of different types of boards in Meerut province.

Objectives

- To study the nature of psychological stress and achievement of senior secondary science students of different boards.
- To study the difference among senior secondary science students of C.B.S.E., U.P.Board, and I.S.C. on psychological stress.
- To study the difference among senior secondary science students of C.B.S.E., U.P.Board, and I.S.C. on achievement.

Research Methodology
Method

Methods of research are generally determined by the theory of the topic under study, objectives of the study, resources of researchers etc. These considerations have led the investigator to use the descriptive survey method of research for the present study. In the present study, all those steps and characteristics have been adopted which have described to be essential for the descriptive method of research by several authors.

Participants

For the present study, science students officially enrolled in 12th standard were taken from the institutions recognized by different boards in Meerut province. Using simple random sampling, 100 senior secondary science students were selected from each type of institutions. Out of 700 science students only 631 students were finally taken because 69 students did not fill the scale properly.

Material and Procedure

To achieve objectives of this study Psychological Stress Scale for Science Students (PSSSS) developed by the researcher was used to measure psychological stress of science students. It was structured around the 12 dimensions of psychological stress. There are 96 items in this scale. Each item was followed by five options, namely, 'Always', 'Often', 'Sometimes', 'Rarely', ans 'Never'. Reliability of the scale was determined by split half method and was found 0.96. Achievement in science of the students was

considered as the marks obtained in science in 12th class board examination.

Data Analysis Techniques

To study the nature of psychological stress, its all dimensions and the achievement of all the science students (N = 631), mean and standard deviation (S.D.) were calculated. To find out the differences among science students of different types of boards on psychological stress and achievement, analysis of variance (ANOVA) was used. In case of significant F-value, t-test was used to find out the differences between students of different types of boards.

Results

Sums, sum of squares, means and S.Ds of science students of different types of boards on total psychological stress and achievement were calculated, which are given in Table-1&4 and summary of analysis of variance for total psychological stress and achievement are given in Table-2&5 respectively.

Table - 1

Sums, sum of squares, means and standard deviations of CBSE, UPB and ISC science students on total psychological stress

Types of Board	N	Sum	Sum of Squares	Mean	S. D.
CBSE	303	78272	21347628	258.32	61.12
UPB	169	47882	13982132	283.33	49.76
ISC	159	39399	10235687	247.79	54.71

Table - 2

Summary of analysis of variance for difference among science students of different types of boards on total psychological stress

Source of Variation	Df	Sum of Squares	Mean Sum of Squares	F
Between	2	112962.88	56481.44	17.586**
Within	628	2016991.56	3211.77	
Total	630	2129954.43	** p < 0.01	

It is depicted from Table - 2 that F-value has come out to be 17.586, which was significant at 0.01 level. This means that students of different types of boards differed significantly on total psychological stress. This analysis shows significant difference among groups. To know significance of difference between groups, t-values were calculated. Results of t-test for total psychological stress are given in Table – 3.

Table - 3

Summary of t-matrix for difference between science students of different types of boards on total psychological stress

Types of Board	CBSE	UPB	ISC
CBSE	0	4.534**	1.819
UPB		0	6.140**
ISC			0

It is revealed from Table-3 that significant differences were obtained   between the students of CBSE and UPB, UPB and ISC on total psychological stress. No significant difference was observed between the students of CBSE and ISC on total psychological stress. It is also clear from Table-1

that highest mean on total psychological stress was found for the students of UPB and lowest for the students of ISC.

Table - 4

Sums, sum of squares, means and standard deviations of CBSE, UPB and ISC science students on achievement

Types of Board	N	Sum	Sum of Squares	Mean	S.D.
CBSE	303	36176	4513004	119.39	25.34
UPB	169	17989	2037145	106.44	26.98
ISC	159	20032	2616906	125.99	24.28

Table - 5

Summary of analysis of variance for difference among science students of different types of boards on achievement

Source of Variation	Df	Sum of Squares	Mean Sum of Squares	F
Between	2	33193.09	16596.54	25,464**
Within	628	409305.95	651.76	
Total	630	442499.04	** p < 0.01	

Table - 5 reveals that F-value was found to be 25.464, which was significant at 0.01 level. This means that students of different types of boards differed significantly on achievement. This analysis shows significant difference among groups. To know significance of difference between groups, t-values were calculated. Results of t-test for achievement are given in Table - 6.

Table - 6

Summary of t-matrix for difference between science students of different types of boards on achievement

Types of Board	CBSE	UPB	ISC
CBSE	0	5.189**	2.690**
UPB		0	6.860**
ISC			0

It is evident from Table-6 that significant differences were obtained   between the students of CBSE and UPB, CBSE and ISC, UPB and ISC on achievement. It is also clear from Table-4 that highest mean on achievement was found for the students of ISC and lowest for the students of UPB.

Conclusions

The findings related to the differences between the students of different types of boards on psychological stress indicate that science students were found to be differed significantly on total psychological stress. It is due to the reasons that the boards of education differ in respect of their structure focus, style of management, infrastructure and academic support system to a great extent from each other and so the psychological stress varies and bring variations among the achievement of students. It is quite reasonable to believe that as would be the input so would be the output. C.B.S.E. board lays emphasis on periodic evaluation of students and imbibes the use of innovative technological devices and strategies for curriculum transactions as compared to U.P. board. I.S.C. board's structure of curriculum and evaluation system is not as dynamic and flexible as compared to other boards. The reason for students to be more stressed in U.P. Board as compared to I.S.C/ and C.B.S.E. are such as security of job, habit of slackness, neutral attitude of teachers towards students, less accountability and poor infrastructure. On the other hand the C.B.S.E. provides competitive curriculum, good infrastructure and healthy environment.

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