

Study of Infrastructure For Science as Dimension of Psychological Stress Among Science Students



Education

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Dr. Narendra Kumar

Assistant Professor Department of Education, S.G.P.G. College, Sarurpurkhurd, Meerut

ABSTRACT

This study attempts to assess the infrastructure for science as dimension of psychological stress among senior secondary science students studying in different types of institutions. 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. Mean, S.D., F-test and t-test were used to analyze the data. Results show that male and female, rural and urban science students differed significantly on psychological stress dimension infrastructure for science. Male science students were found to be more stressed than female science students. Further, rural science students were found more stressed than urban science students. Significant difference was also observed among the students of different types of institutions. Highest psychological stress due to infrastructure for science was found in the students of GAS and lowest in the students of AS.

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). Infrastructure for science is also the major causal factor of stress among science students. This refers to the stress among science students because of the inadequate nature of facilities available in the school for the teaching and learning of science. The researcher found that there is no research 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 infrastructure for science as dimension of psychological stress among senior secondary science students.

Objectives

1. To study the nature of infrastructure for science as dimension of psychological stress among science students.
2. To study the difference between male and female science students on infrastructure for science as dimension of psychological stress.
3. To study the difference between rural and urban science students on infrastructure for science as dimension of psychological stress.
4. To study the difference among science students of different types of institutions on infrastructure for science as dimension of psychological stress.

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.

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. Each item was followed by five options, namely, 'Always', 'Often', 'Sometimes', 'Rarely', and 'Never'.

Data Analysis Techniques

To study the nature of infrastructure for science as dimension of psychological stress, all the science students (N = 631), mean and standard deviation (S.D.) were calculated. To find out the differences among science students on infrastructure for science as dimension of psychological stress, analysis of variance (ANOVA) was used. In case of significant F-value, t-test was used. Results are presented in the following tables.

Results

After analysis the data, it was observed that the mean, median and mode values of all the 631 science students on psychological stress dimension infrastructure for science were found to be 21.594, 21, and 20 which indicate moderate level of stress due to infrastructure for science.

Table-1

Summary of t-test for difference between male and female, rural and urban science students on infrastructure for science as dimension of psychological stress

Groups	Mean	S. D.	t-value
Male (N = 419)	22.59	7.77	3.79**
Female (N = 212)	20.03	8.41	
Rural (N = 218)	23.69	7.21	4.49**
Urban (N = 413)	20.70	8.32	

It is evident from Table - 1 that t-values between the means of male and female science students on psychological stress dimension infrastructure for science was found to be 3.79 which was significant at 0.01 level of significance. This reveals the fact that male and female science students differed significantly on psychological stress dimension infrastructure for science. Since mean difference was in favors of male students, it indicates that male science students were found to be more stressed than female science students. It is also evident from Table- 1 that t-values between the means of rural and urban science students on psychological stress dimension infrastructure for science was found to be 4.49 which was significant at 0.01 level of significance. This revealed the fact that rural and urban science students differed significantly on psychological stress dimension infrastructure for science. Since mean difference was in favor of rural students, it indicates that rural science students were found more stressed than urban science students.

Table - 2

Summary of ANOVA for difference among science students of different types of institutions on psychological stress dimension infrastructure for science

Source of Variation	df	Sum Squares	Mean Sum of Squares	F
Between	6	2594.03	432.34	7.005**
Within	624	38511.71	61.72	
Total	630	41105.74	** p < 0.01	

It is evident from Table - 2 that F-value was found to be 7.005, which was significant at 0.01 level. This means that students of different types of institutions differed significantly on psychological stress dimension infrastructure for science. This analysis shows significant difference among groups. To know significance of difference between groups, t-values were calculated. Results of t-test are given in Table - 3.

Table - 3

t-matrix for difference between science students of different types of institutions on psychological stress dimension infrastructure for science

Types of Schools	N	Mean	KV	JNV	GIC	GAS	PS	CMS	AS
KV	95	19.32	0	3.514**	4.020**	4.723**	1.399	1.721	0.192
JNV	82	23.51	0	0.334	0.961	2.390*	1.369	3.840**	
GIC	90	23.90		0	0.646	2.867**	1.727	4.375**	
GAS	79	24.59			0	3.629**	2.243*	5.172**	
PS	98	20.85				0	0.605	1.660	
CMS	96	21.61					0	1.919	
AS	91	19.10						0	

It is clear From Table - 3 that significant differences were obtained between the students of KV and JNV, KV and GIC, KV and GAS, JNV and PS, JNV and AS, GIC and PS, GIC and AS, GAS and PS, GAS and CMS, GAS and AS on psychological stress dimension infrastructure for science. No significant differences were observed between the students of KV and PS, KV and CMS, KV and AS, JNV and GIC, JNV and GAS, JNV and CMS, GIC and GAS, GIC and CMS, PS and CMS, PS and AS, CMS and AS on psychological stress dimension infrastructure for science. It is also clear from Table - 3 that highest mean on psychological stress dimension infrastructure for science was found for the students of GAS and lowest for the students of AS.

Conclusions

Findings of this study show that male and female, rural and urban science students differed significantly on psychological stress dimension infrastructure for science. Male science students were found to be more stressed than female science students. Further, rural science students were found more stressed than urban science students. Significant difference was also observed among the students of diifferent types of institutions. Highest psychological stress due to infrastructure for science was found in the students of GAS and lowest in the students of AS.

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