A STUDY OF EXAMINATION STRESS IN RELATION TO MEMORY AND LEARNING STYLES

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Abstract

In the present study, memory and learning styles of secondary school students have been examined, so as to know how they co-relate with and influence examination stress in students. The objectives of the study are : (i) to study the relationship between examination stress and memory, (ii)to study the relationship between examination stress and learning-styles, (iii) to compare examination stress among students with high, moderate and low memory, (iv) to compare examination stress among students who adopt high and low reproducing/ constructive learning styles. The sample for the present study consisted of 640 students studying in class XI of four U.P. Board schools and four C.B.S.E. Schools of Allahabad. 'Examination Stress Scale' of K.S. Misra was used to measure examination stress among secondary school students. 'Learning Styles Inventory' of K.S. Misra was used to identify the learning styles preferred by secondary school students. A Test on Memory constructed by the researcher was used to assess short term memory. The test consists of items based on recall and information processing. The findings are : (i) there is negative relationship between examination stress and memory, (ii)(a) examination stress is positively related to reproducing learning-style, (ii)(b) no significant relationship exists between examination stress and constructive learning-style, (iii) students with high, moderate and low memory differ from one another in their experience of examination stress, (iv)(a) students adopting high, moderate and low reproducing learning-style differ from one another on examination stress, (iv)(b) students adopting high, moderate and low level of constructive learning-style do not differ from one another in their experience of examination stress.

Keywords: *examinationa, stress, memory, learning styles*

Interactions of human beings with self, their environment and situations or events do often lead them to a state where one feels depleted in energy and pressure begins to build up, the ramifications of which surface on the mental functioning, behaviour and physiology of the individual. One such event that puts us in stress, specially the student community, is examinations. This evaluative event has the potency to evoke anxiety- about ' how I will fare in the test', 'what would be the outcome' and ' how I will be judged on the outcome.' Such a scenario has been well described by Sarason (1959) that ' We live in a test conscious, test-giving culture in which the lives of the people are in part determined by their test performance'. Zeidner and Most (1992) substantiate this view when they describe the contemporary society as 'test-oriented and test-consuming'.

Test anxiety, used synonymously with examinaton stress, is frequently cited among the pivotal factors at play in determining a wide array of unfavourable outcomes for students, including poor cognitive performance, scholastic underachievement, psychological distress and ill health (Zeidner, 1998). In addition it may also jeoparadize assessment validity in the cognitive domain. The test anxiety construct is considered as a situation specific trait accounting for individual differences in the extent to which people find examination threatening (Spielberger and Vagg, 1995). Denscombe (2000) thinks that 'it is possibile to conceptualise examinations as stressful by virtue of their own properties or functions without having to refer to perceived worry and arousal'.

Examination stress can be defined as a natural concern individuals have about their preparation for exam. When students' preparation for the exam is not sufficient or it does not meet their expectation or it disappoints others, stress is caused. Zeidner (2007) states that test anxiety is typically evoked in educational settings when a student believes that his or her intellectual, motivational and social capabilities and capacities are taxed or exceeded by demands stemming from the test situation. It is imperative to mitigate the debilitating effects and magnitude of examination stress among students as they become a serious obstacle to demonstrating academic achievement and also relate to myriad difficulties in other areas of their life including relationships and mental health difficulties. Since stress emanates from the way one perceives an evaluative situation as challenging or threatening, it would be interesting to know if memory and learning styles, have a role in determining stress.

Memory is the faculty or capacity by which the past experiences or learning can be reproduced for use when required at a later time. Memory plays an important role in the examinations as it enables the student to demonstrate knowledge under evaluative conditions and help them make competence judgements. These competence judgements are an important factor in determining whether examinations are perceived as challenging or threatening. Examination stress may result from an anticipation of failure due to poor memory or its failure.

Learning styles can be defined as strategies adopted for learning subject content.It refers to the way one internally experiences and recalls or processes information. It may be reproducing or constructive. It may also be enactive, figural or verbal. Learning styles involve educating methods that allow an individual optimum learning. Dunn, et al. (1995) suggested that matching students' learning-style preferences with educational interventions compatible with those preferences is beneficial to their academic achievement. Thus, a preferred way of learning that induces confidence and motivation in a student to fare well in the exams, might also help reduce the level of anxiety or stress accompanying examinations.

In the present study memory and learning styles of secondary school students have been studied, so as to know how they influence examination stress in students.

Objectives of the study

The objectives of the study are as follows :-

To study the relationship between examination stress and memory; To study the relationship between examination stress and learning-styles; To compare examination stress among students with high, moderate and low memory; To compare examination stress among students who adopt high and low reproducing /constructive learning styles.

Hypotheses of the study

The following hypotheses were tested:-

There exists no relationship between examination stress and memory of secondary school students; There exists no relationship between examination stress and learning styles of secondary school students; There is no difference in the examination stress of students with high, moderate and low memory; There is no difference in the examination stress of students who have high, moderate and low reproducing / constructive learning-styles.

Methodology

Sample - The sample for the present study consisted of 640 students studying in class XI of four U.P. Board schools and four C.B.S.E. Schools of Allahabad.

Tools used - Examination Stress Scale of K.S.Misra was used to measure examination stress among secondary school students. The split half reliability was found to be .71 for students of class VII. The alpha reliability was .7814 for students of class X and for students of undergraduate and postgraduate classes the values of alpha and split half reliability were found to be .902 and .875 respectively. The item-total correlations between every item of the Examination Stress Scale and the total score on the tool are significant at .01 level, which reveal the existence of item validity.

Learning Styles Inventory of K.S.Misra was used to identify the learning styles preferred by secondary school students. Alpha reliability of the Learning Style Inventory for the three learning styles namely- Enactive, Figural and Verbal are .682, .742 and .903 respectively. Intrinsic validity of the Learning Style Inventory was calculated by finding the product moment correlations among learning styles. All the learning styles are positively related toone another.

A Test on Memory constructed by the researcher was used to assess short term memory. The test consists of items based on recall and information processing. The split half reliability co-efficient for recall based items was found to be .86 and for process based items it was .88.

Statistics used For the analysis of data Pearsons' coefficient of correlation and ANOVA were used.The method of Mean + 1S.D was employed to categorise students into high, moderate and low groups both for memory and reproducing/ constructive learning-styles.

Results and discussion

Table 1 - Relationship of examination stress with memory and learning-styles

S.No.	Variable	Coefficient of correlation
1.	Memory	-.29**
2.	Reproducing learning-style	.11**
3.	Constructive learning-style	.01

** Significant at the .01 level

Observation of table 1 shows that the value of coefficient of correlation between examination stress and memory is -.29. The value is significant at .01 level and so null hypothesis no.1 stands rejected. It can be inferred that there is negative relationship between examination stress and memory. This finding of the present study draws support from the finding of Yonsefi (2010) that test anxiety and memory were significantly correlated. The existence of a relationship between examination stress and memory suggests that the capacity of a student to retain and retrieve information is related to examination stress. However, the finding of Lewis, Nikolova, Chang and Weekes (2007) is contradictory to the present finding. They found that no correlations exist between working memory and either cortisol or psychological measure of examination stress.

The value of coefficient of correlation between examination stress and reproducing learning-style is .11 and it is significant at .01 level. Thus, the null hypothesis '2' stands rejected with regard to reproducing learning-style. It indicates that examination stress is positively related to reproducing learning-style. Students who learn their subject content by repeating and memorizing, imitation and practice, using either verbal, figural or enactive method, likely experience more stress related to examinations.

The value of coefficient of correlation between examination stress and constructive learning-style is .01. The obtained value is not significant at .05 level and the hypothesis '2' stands accepted with regard to constructive learning-style. So, no significant relationship exists between examination stress and constructive learning-style. It indicates that adoption of constructive learning-style by students may not contribute to varying levels of examination stress they experience.

Table Table 2 - Results of ANOVA showing comparison of examination stress among students with high, moderate and low memory

Source	Sum of squares	df	Mean Square	F-ratio
Between Groups	13595.386	2	6797.693	21.40**
Within Groups	202316.214	637	317.608	

**significant at .01 level

Table 3 - Results of multiple range test showing difference in examination stress among students with high, moderate and low memory

Group No.	Level of Memory	Mean	Groups Compared	Difference between Means
1.	High	42.79	1 and 2	-5.773*
2.	Moderate	48.56	2 and 3	-9.765*
3.	Low	58.33	1 and 3	-15.538*

* significant at 0.05 level

Observation of table 2 shows that the value of F-ratio is 21.40 and it is significant at .01 level. So, the null hypothesis '3' stands rejected. It means that students with high, moderate and low memory differ from one another in their experience of examination stress.

Observation of table 3 shows that the mean score on examination stress for secondary school students with high, moderate and low memory are 42.79, 48.56 and 58.33 respectively.Paired comparisons show that as compared to students with high level of memory, students with moderate or low memory have high examination stress. As compared to students with moderate level of memory, students with low memory experience higher examination stress. It implies that level of memory in a student influences his experience of examination stress.

Table 4 - Results of ANOVA showing comparison of examination stress among students having high, moderate and low reproducing learning-style

Source	Sum of squares	df	Mean Square	F-ratio
Between Groups	1929.474	2	964.737	
Within Groups	213982.126	637	335.922	2.87*

*significant at .05 level

Table 5 - Results of multiple range test showing difference in examination stress among students having high, moderate and low reproducing learning-style

Group No.	Level	Mean	Groups Compared	Difference between Means
1.	High	50.11	1 and 2	.743
2.	Moderate	49.36	2 and 3	4.699*
3.	Low	44.66	1 and 3	-5.442*

*significant at 0.05 level

Table 6 - Results of ANOVA showing comparison of examination stress among students having high, moderate and low constructive learning-style

Source	Sum of squares	df	Mean Square	F-ratio
Between Groups	323.932	2	161.966	
Within Groups	215587.668	637	338.442	.479

Observation of table 4 shows that the value of F-ratio is 2.87 and it is significant at .05 level. So, the null hypothesis '4' with regard to reproducing learning-style stands rejected. It means that students adopting high, moderate and low reproducing learning-style differ from one another on examination stress. Observation of table 5 shows that the mean score on examination stress for students having high, moderate and low reproducing style are 50.11, 49.36 and 44.66. Significant paired comparisons show that as compared to students adopting low reproducing style, students having moderate or high reproducing style have high examination stress but students with moderate and high reproducing learning-style do not differ from one another in their experience of examination stress. It means that students adopting high level of reproducing learning-style feel more examination stress than those who adopt low level reproducing learning-styles.

Observation of table 6 shows that the value of F-ratio is .479. It is not significant at .05 level. Therefore, hypothesis no. 4 with regard to constructive learning-style can be accepted. It implies that the students adopting high, moderate and low level of constructive learning-style do not differ from one another in their experience of examination stress.

Thus, it can be inferred that the level of memory in a student influences the extent of examination stress experienced by him/her. This finding can draw support from the analysis of Smith, Ingram & Brehm (1983) who said that :-(a) cognitive excesses involving self-preoccupation and self focused ruminating thoughts (conceptualised as excess cognitive load) and (b) cognitive deficit involving reduction in cognitive processes such as attention, memory and retrieval accounts for increased anxiety and poor performance in examinations. Stober & Esser (2001) also fousnd out how test anxious individuals use external memory aids to deal with the well known storage deficits associated with high levels of test anxiety. However, the level of preference for reproducing learning style contributes to increase or decrease in examination stress. If one adopts the reproducing learning-style more, one is likely to experience greater examination stress. Students with high and low level of constructive learning-style do not differ in examination stress. It indicates that the practise of mugging and rote memorisation does not induce enough confidence in the pupil to rely on one's ability to act successfully during examination. This lack of self-efficacy leads to an imbalance between the appraised task demands and the appraised subjective coping resources, resulting in test anxiety. It decreases performance (Sarason, 2013).

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