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Metacognitive Thinking a Strategy to Reduce test Anxiety among University students

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ABSTRACT

An investigation was made to study the effect of metacognitive thinking on test anxiety of students. The sample of present study consisted of 200 cases. Participants (100 Boys and 100 Girls) were randomly selected and their age range was between 20-25 years who were pursing post graduation. Metacognitive Thinking Scale by Sandhu and Goel (2010), and Test Anxiety Scale by Sharma (1980) were used. 'ANOVA' was employed to see the effect of metacognitive thinking on test anxiety of students. The results indicate that there is a significant effect of metacognitive thinking on test anxiety ($F_{(1,196)} = 7.209$, $p < .01$) of students. It is observed with the present findings that the students of high metacognitive thinking are lower in test anxiety.

Key words: Metacognitive thinking, Test Anxiety and Post graduation.

INTRODUCTION

There was a time when psychology was limited to intelligence and talents among students for success in academic life. Today, time has been changed and psychology comes out with detailed concept of mental processes and higher level of cognitions. Metacognitive Thinking is one of the parts of higher level cognitions and it is the awareness and understanding of one's own thought processes which play a vital role in students' academic life as well as personal life. It helps students to understand self cognition, personal knowledge, and cognitive strategies and also helps in self monitoring which brings self confidence in students. The ultimate aim of Metacognitive thinking is to make an individual self sufficient to understand self and with the use of metacognitive strategies a person may stay away from stress, depression, anxiety and other psychological problems.

Metacognition refers to the higher order thinking that involves active control over the thinking processes as well as it is a knowledge and awareness of one's own cognitive processes. The theory of metacognition attributed to Flavell with his work in 1979. Metacognition is a multidimensional set of skills which involve thinking about thinking. Flavell (1979) demonstrated that "metacognition also consists of cognitive regulation which deals with planning, monitoring and evaluation." Planning is the identification, selection of strategies and utilization of resources, including goal setting, and activating backward knowledge. Monitoring is awareness of performance,

self testing and cognitive experiences. Evaluation is appraising of cognitive processes and outcome of planning, monitoring with revising goals.

Test anxiety is the set of phenomenological, psychological and behavioral responses which is basically a strong emotional reaction that an individual experiences before and during an examination. According to Liebert and Morris (1967) there are two components of test anxiety. First component is cognitive component which is a mental activity, revolves around testing situation and have possible effects on individual which leads individual towards anxiety and make individual more obsessed with the result of failure and its consequences. Second component is emotionality or autonomic arousal. Emotionality is a physiological component of test anxiety within which individual experiences tighten muscles, increased heart beat, feeling of sickness, dizziness, sweating and shaking. The main source of test anxiety is perception of testing situations, high feeling of perfectionism and emotional instability towards results of test, low self confidence, and poor recognition of self potential as well as lack of confidence concerning preparation for examination.

For assessment and evaluation of students' skills and abilities our education system is totally depend upon conducting the examination. Sometimes the experiences of examination lead to mental stress to students which hurt their self esteem and reduce motivation. According to Sarason (1980) repeated experiences of failure sometimes put students towards shame, incompetence and threatened self esteem.

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The main source of test anxiety is perception of testing situations, high feeling of perfectionism, and emotional instability towards results of test, low self confidence, and poor recognition of self potential as well as lack of confidence concerning preparation for examination. In the words of Zohar (1998) Maladaptive perfectionism and low emotional stability are the root causes of test anxiety among students. The theory of attribution suggested that when individuals get success in examination they attributed to inner causes or disposition and when individuals do not get success they attributed to external disposition.

NEED AND SIGNIFICANCE OF THE PROBLEM

Excellence, particularly, in academics has been seen as an important aspect in student's life. It is very obvious that students' life is such a period where students

have to face various tests at various levels to judge their performances and may suffer from 'test anxiety' which is basically a strong emotional reaction that an individual experiences before and during an examination. Test anxiety is inversely related to students' self esteem, self confidence, and directly related to their negative evaluation and defensiveness. Metacognitive thinking plays a vital role in students' life as it helps students to involve in higher order thinking which helps them to know their own potential, stamina and capacity to do things. Metacognitive thinking helps students to understand how to solve problems successfully while evaluating performance which helps them in achieving excellence. Therefore, researcher is curious to know whether there is an effect of metacognitive thinking on test anxiety of students. Simultaneously it may be assumed that metacognitive thinking can be used as a strategy for reducing test anxiety among students.

METHOD

VARIABLES

Independent Variable

- Metacognitive Thinking
- Gender

Dependent Variables

- Test Anxiety

Control Variables

- Age
- Academic Qualification
- Academic achievement

Inclusion Criteria:

- Subjects within age range of 20-25 years were included.
- Post graduate (Pursuing) students were included.
- The study included subjects between7.5- 9.0 CGPA in Graduation from Dayalbagh Educational Institute, Agra.

Exclusion Criteria:

- The study excluded subjects below twenty and above twenty five years of age group.
- Subjects who were under graduate and above post graduation were excluded.
- The study excluded subjects below 7.5 CGPA and above 9.0 CGPA in Graduation from Dayalbagh Educational Institute, Agra.

STUDY AREA AND SAMPLE SELECTION

The sample of present study consisted of 200 cases. Participants (100 Boys and 100 Girls) were randomly selected, who were doing Post Graduation in different academic

streams of Dayalbagh Educational Institute, Agra. Participants' age group was between 20-25 years.

TOOLS

1. **Metacognitive Thinking Scale:** Metacognitive Thinking Scale is constructed by Sandhu and Goel (2010). It provides useful way to measure Metacognitive Thinking. The split –half reliability of this scale is 0.80. The scale consisted of 80 items (10 for each dimension). Higher scale value indicates better Metacognitive Thinking.

2. **Test Anxiety Scale:** Test Anxiety Scale is constructed by Sharma in 1980. It provides useful way to measure test anxiety among college students. It consists of 25 test situations having five alternative answers. The reliability of this test is 0.75 and validity of this test is 0.62.

PROCEDURE FOR DATA COLLECTION: The data of the present study was collected through random sampling on the basis of one to one interaction with students pursuing post graduation from various faculties of Dayalbagh Educational Institute, Agra, within an age range of 20-25 years and who secured 7.5- 9.0 CGPA in Graduation from Dayalbagh Educational Institute, Agra.

RESEARCH DESIGN:

2x2 factorial design was used.

STATISTICAL ANALYSIS

Two Way Analysis of Variance (ANOVA) was used.

DATA ANALYSIS

The objective of the present investigation is to study the **"Effect of Metacognitive Thinking and Gender on Test Anxiety and of Students".** For this ANOVA was employed. The subjects were categorized on the basis of median (high and low) of metacognitive thinking test scores.

TABLE-A, SHOWING MEAN VALUES OF TEST ANXIETY

		Male	Female	Total(Mean)
Metacognitive Thinking	High	63.4	61.9	62.65
	Low	64.3	65.3	64.8
	Total(Mean)	63.1	64.35	127.45

Table B, Showing summery of analysis of variance of metacognitive thinking and gender on test anxiety.

Source	Sum of squares	df	Mean Squares	*F*
Metacognitive Thinking	231.125	1	231.125	7.209**
Gender	3.125	1	3.125	0.097
MetacognitiveThinking* Gender	78.125	1	78.125	2.437
Error	6283.01	196	322.056	
Total	6829.635	200		

****p<0 .01**

Effect of Metacognitive Thinking on Test Anxiety:

The main effect of first independent variable Metacognitive Thinking $F_{\text{Metacognitive Thinking}}(1,196) = 7.209$, ($p < 0.01$) on dependent variable test anxiety of students was found significant, which suggested the rejection of null hypothesis (that have been formulated) and directed to the acceptance of directional hypothesis related to the variable. This supported the interpretation that Metacognitive Thinking (high and low) certainly produces differential effect on test anxiety of students. The difference between the Means $X_{\text{High Metacognitive Thinking}} = 62.65 < X_{\text{Low Metacognitive Thinking}} = 64.8$ is reliable and it indicates that students with high metacognitive thinking lower in test anxiety in comparison to students with low metacognitive thinking.

Effect of Gender on Test Anxiety:

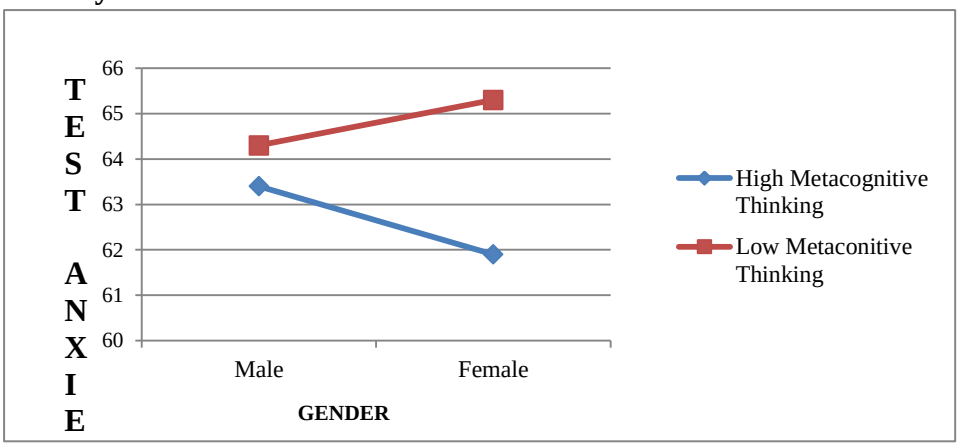
Table B- indicates that there is no significant effect of gender on test anxiety of students. The value of *F* for the second independent variable i.e. Gender (Male and Female) $F_{\text{Gender}} = (1,196) = 0.097$, $p > 0.05$, suggested the non- rejection of null hypothesis framed and formulated for the purpose. This in turn supported the interpretation that, Gender of students (Male and Female) did not produces any differential effect on test anxiety i.e. the difference between the Means $X_{\text{Male}} = 63.1 < X_{\text{Female}} = 64.35$ on test anxiety of students. The apparent difference between the two means can safely be attributed to chance factor. Thus the related null hypothesis, i.e. 'There is no significant effect of Gender on test anxiety of students' is accepted.

Effect of Metacognitive Thinking* Gender on Test Anxiety:

Table B and figure A show the interaction effect of the two independent variable Metacognitive Thinking* Gender on test anxiety $F_{\text{Metacognitive Thinking* Gender}}(1,196) = 2.437$, ($p > 0.05$) was not significant, and this caused the acceptance of null hypothesis pertaining to the interaction of two variables framed and formulated for the purpose. This supported the interpretation that the interaction of independent variables Metacognitive Thinking (High and Low) and Gender (Male and Female) jointly did not produce significant effect on test anxiety of students. The difference among Means $X_{\text{High Metacognitive Thinking, (Male)}} = 63.4 > X_{\text{HighMetacognitive Thinking, (Female)}} = 61.9 < X_{\text{LowMetacognitive Thinking, (Male)}} = 64.3 < X_{\text{Low Metacognitive Thinking, (Female)}} = 65.3$ are not reliable, which is in turn imply that the apparent difference of Metacognitive thinking (High and Low) and Gender (Male and Female) on test anxiety are not real, these

differences can be due to chance factor. Thus the null hypothesis related to interaction effect of the two independent variables on test anxiety of students, i.e. 'There is no significant interaction effect of Metacognitive Thinking and Gender on test anxiety of students is tenable.

FIGURE -A, Interaction Effect of Metacognitive Thinking* Gender on Test Anxiety



FINDINGS

❖ **There is a significant effect of metacognitive thinking on test anxiety of student:** With reference of the present findings it can be concluded that there is a significant effect of metacognitive thinking on test anxiety of students which shows that the students with high metacognition are low in test anxiety as compared to students with low metacognition. The reason behind, it may be that individuals with high metacognition have good control over self and know more about their own potentials, strength and weaknesses. They may deal effectively with challenging situations like examination and assessing environment with more rational and logical thoughts through self perception as metacognition consist of strategies, planning, knowledge and past experiences which may be helpful in analyzing stressful situations and reducing anxiety. Matthaw and Hillyard (1999) conducted a study on metacognition and clarified that test anxiety traits were closely related to general metacognition. Veeman and Kerseboom (2000) explained that students who lack in metacognitive skills suffer from test anxiety, may also experience failure in examinations.

❖ **There is no significant effect of gender (male and female) on test anxiety of students:** The finding of the present study indicates that there is no significant effect of gender on test anxiety of students. Its shows that both the gender (Male and Female) have similar effect on test anxiety. The difference between the mean value of male and female students on test anxiety can be attributed to chance factor. Macoom (1996) found that gender differences have rarely been observed in test anxiety. Read (1999) suggested that the male and female suffers from same kind of stress under pressure which leads to test anxiety during academic life.

❖ **There is no significant interaction effect of metacognitive thinking and gender on test anxiety of students:** The present study indicates that there is no significant

interaction effect of metacognitive thinking and gender on test anxiety of students. It can be interpreted that metacognitive thinking*gender do not produce jointly effect on test anxiety among students.

IMPLICATIONS

Today, the students are under high pressure as competition is increasing tremendously and students have to face many challenges during academic and social life. To face these challenges metacognition may play an important role. As metacognition is an essential part of higher order cognition which is based on self instructional processes, that may help to motivate the students. The fact remains that every individual has to face tests and exams at every stage of life in various forms of challenges. But when they are scholars and related to academic life they have to face more tests to prove them self worthy. Metacognition helps individual in developing positive attitude towards self which reduces test anxiety and makes the students more confident and efficient to face exams without anxiety and fear. It also helps to overcome physiological problems like headache, stomach problems, and numbness before and during examinations. If institutions as schools and colleges try to arrange training and interventions like counseling program for students, which may be helpful to facilitate the metacognition and reduce test anxiety of students which will serve as a bases for their success, achievement and recognition. From the present findings it can be assumed that metacognitive thinking may be used as a strategy to reduce test anxiety.

CONCLUSION

It can be concluded from the present findings that metacognitive thinking can be used as a strategy for reducing test anxiety of students. The idea of the present study is that students can enhance their learning by becoming aware of their own thinking as they read, write and solve problems at school. Counselor can promote this awareness by simply informing students about effective problem solving strategies and discussing cognitive and motivational characteristics of metacognition. In same reference Rezvan and Ahmedi (2007) found that metacognitive training increase academic achievement and happiness among students.

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