

Effect of Metacognitive Thinking on Test Anxiety of 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 pursuing post graduation. Metacognitive Thinking Scale by Sandhu and Goel (2010) and Test Anxiety Scale by Sharma (1980) were used. 't-test' was employed to see the effect of metacognitive thinking on test anxiety. The result indicates that there is significant effect of metacognitive thinking on test anxiety ($t = 3.31, p < .01$). It is observed with the present finding that the students of high metacognitive thinking are low in test anxiety in compared to students with low metacognitive thinking.

Key words: Metacognitive Thinking, Test Anxiety.

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Introduction

Metacognition refers to the higher order thinking that involves active control over the thinking process 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. Rasmussen (1986) with the context of human machine system suggested that "Metacognition is an abstraction hierarchy in which higher level describes the functional process of system while lower level describes physical structure of system." Metacognition is a fundamental nature of human cognition because every human being does not have cognitive activities only but they have cognition itself about cognition.

Metacognition is knowledge about our cognitive processes which guide individual in arranging circumstances and selecting strategies to enhance further cognitive performance. Metacognition is a important pillar which differentiate between animals and human

cognition. Content of working memory enhances Metacognitive process and according to these contents individual reaches to judgment, related to his cognitive situations. According to Akin (2007) "Metacognitive thinking is the highest level of mental activity since it keeps individuals aware of themselves and others during thinking to solve problems" The main work of Metacognitive thinking is observing and controlling mental functioning which directs to solve problems and decision formation. 'Metacognitive thinking', 'metaknowledge' or 'thinking about thinking' are the terms used for metacognition.

According to developmental framework, preschool children are realist who believes in knowing. Young Children believe that perception is equal for everyone and matched with external reality. During the stage of absolutism around age four, individuals have cognition that two people may be different in perception. By adolescence individuals have cognition that different people have different opinion on particular issue and have relativism

where things are subjective. During adulthood, individuals have capacity to tolerate uncertainty and have ability to reason out things with evidences as per their own perspective. Study of Hendy (1993) suggested that development of metacognition goes together with the development of declarative memory where individuals become capable of knowing, thinking, remembering and forgetting. Sperling (2002), development of metacognition starts with the age of 12 with the development of declarative memory and at the end of adolescence elements of metacognition fully developed.

Test anxiety is a negative evaluation and a part of social phobia which is a persistent fear of social or performance situations which may have embarrassment. In the words of Akca (2011) "Test anxiety is an emotional reaction that an individual experiences before and during an examination." In the same way Zeinder and Matthews (2005) claimed that "usually individual faces many evaluative situations which require high levels of performance, creates distress, heightened anxiety, comparative and competitive behaviors that disturbs focus of individual during examination." These distress and anxiety affect individual's health and academic life.

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.

Putwain and Connors (2010) stated that "test anxiety consists of components like cognitive, physiological, affective and behavioral components." The cognitive component consists of negative thoughts experienced by individual during and after test. These thoughts lead to physiological changes known as physiological- affective components which lead to stomach problems, hand and leg shaking, feeling of dizziness, feeling of uneasiness. The behavioral component is the presence of poor study skills and test taking behaviors, inattentiveness or distraction or division of attention during examination.

Many researchers have found that test anxiety leads poor performance, low motivation, and negative self evaluation, distortion, of attention and low concentration as well as low self confidence, which affect the school performance. The effects of test anxiety may also link with motivation and success expectancy. Individuals with high test anxiety may have low success expectancy level and low motivation (Bembenhutly, 2008). Bransford (1986) states that test anxiety has negative consequences on achievement, grades, class room behavior and feeling of unease which lead to extreme fear of failure. Individuals having high test anxiety may suffer from sweating, muscle tension, respiratory problems, hypertension, coronary heart disease, suppressed immune system functioning.

Problem

To study the effect of metacognitive thinking on test anxiety of students.

Hypotheses

There is a significant effect of metacognitive thinking on test anxiety of students.

Operational Definitions

Metacognitive Thinking: Metacognitive thinking refers to the higher order thinking that

involves active control of self over the thinking process. The basic notion of metacognitive thinking is the awareness of an individual self as a cognitive thinker.

Test Anxiety: 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.

Justification of Problem

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. If an individual has Metacognitive thinking, he may enquire and probe questions, may take risk, and may share ideas, as individual becomes active creator of information from his own cognition. Metacognitive thinking helps students to understand how to solve problems successfully while evaluating performance which helps them in achieving excellence. 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. Therefore researcher is curious to know whether there is an effect of Metacognitive thinking on test anxiety and self confidence of students.

Method

Variables

Independent Variable

- Metacognitive thinking

Dependent Variable

- Test Anxiety

Control Variables

- Age (20- 25 years)
- Gender (Boys and Girls)
- Academic Qualification (Pursuing Post Graduation)

Sample Description

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. Science, arts and commerce academic stream were included in the sample. 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.

Research Design

Randomized Two Group Design was used.

Statistical Analysis

't-test' was used.

Data Analysis And Interpretation

After data collection, statistical analysis was processed by the investigator. The main aim of analysis and interpretation is to give meaning to the raw scores obtained by test hypothesis which helps in drawing inference. The objective of the present investigation is to study the “**Effect of**

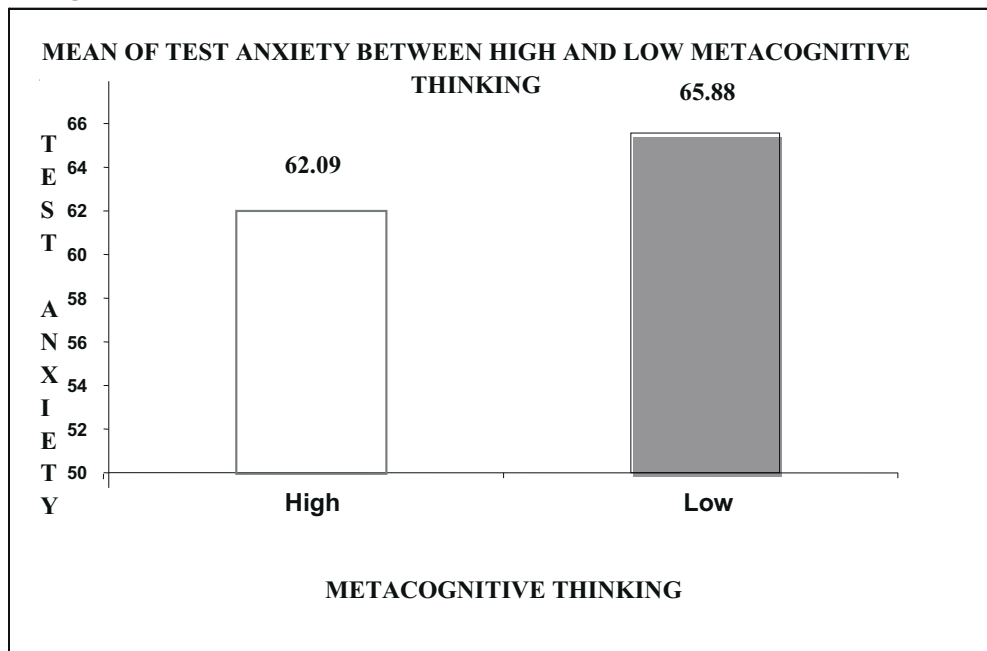
Metacognitive Thinking on Test Anxiety of Students". For this "t-test" was employed.

Table -1, Test Anxiety And Metacognitive Thinking

Metacognitive Thinking	N	df	Test Anxiety		SEd	't'
			Mean	SD		
High	100	198	62.09	7.72	1.14	3.31**
Low	100		65.88	8.44		

**p<0.01

Figure -1



Finding

• There is significant effect of metacognitive thinking on test anxiety of students.

Discussion

With the reference of present study 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. Thus, there is an inverse effect of metacognitive thinking on test anxiety. 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. Darling (2008) also suggested that metacognitive strategies are effective in reducing test anxiety among students. Veeman and Kerseboom (2000) explained that students who lack in metacognitive skills suffer from test anxiety, may also experience failure in examinations.

Conclusion

With reference of the present result it can be concluded that there is a significant effect of metacognition on test anxiety which shows that students with high metacognition are less prone to test anxiety in comparison to students with low metacognition.

Implication Of The Study

Today, the students are under high pressure as competition is increasing tremendously and students have to face many challenges during academic 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 and make them able to face the challenges of every sphere of life which become the backbone for getting success and achievement in academic life as well. 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 themselves worthy. Metacognitive thinking is a higher order thinking where one is

thinking process that helps 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 intervention programme which may be helpful to facilitate the metacognitive thinking with change in orientation from teacher centric to student centric. It will ultimately reduce test anxiety of students which will serve as bases for their success, achievement and recognition.

Limitations And Suggestions

The present inquiry has certain limitations; therefore few suggestive measures are given for further researches, which are as follows:

- The study was conducted on limited sample of two hundred students from Dayalbagh Educational Institute only. It is suggested that further research can be conducted on a larger sample.
- Only science, arts and commerce college students from Dayalbagh Educational Institute are included in this study. It is suggested that the further research can be conducted on the other academic streams as well.
- The study has not been done on below twenty and above twenty five years of age group. So results cannot be generalized on other age group. It is suggested that the further research can be administered on other age groups also.
- Rural areas are not included in the sample. Therefore scope of the study is limited. It is suggested that further research can be conducted in rural areas.

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