REVIEW OF RESEARCH

METACOGNITION AND CRITICAL THINKING ABILITY OF HIGHER SECONDARY STUDENTS

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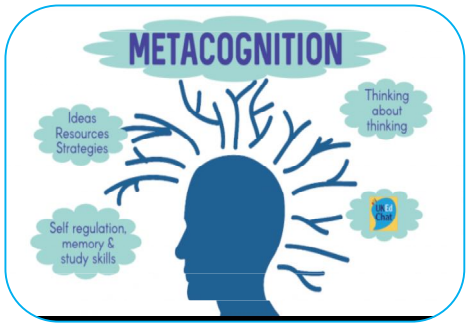

ABSTRACT:

The present study was aimed to find out the relationship between metacognition and critical thinking ability of higher secondary students. Normative survey method was adopted. The sample consisted of 400 higher secondary students from 10 schools in Kanyakumari district. Self-made tools were administered to collect the data. The study revealed that there is a significant positive correlation between metacognition and critical thinking of higher secondary students.

KEYWORDS: Metacognition, Critical Thinking, Higher Secondary Students.

INTRODUCTION

Cognition is a universal language of thought process. High cognition promotes significantly high intellectual ability. Learning how to learn, how to think and how to organize their thinking processes to solve different problems are the main objectives of education. Effective learning is the product of effective teaching and effective thinking. Teachers play an incomparable role in developing high cognition. This is possible only by the efficient teachers, who possess high cognition and higher order thinking. An individual with high cognition is characterised by high knowledge, judging ability, critical thinking and problem solving ability.

Metacognitive knowledge of students is an important concept for the classroom. It refers to higher order thinking which involves active control over the cognitive processes engaged in learning. John Flavell coined the term metacognition in the late 1970s to mean "cognition about cognitive phenomena," or more simply "thinking about thinking", and he defines "Metacognition is knowledge concerning one's own cognitive processes and products or anything related to them... It refers to the active monitoring and consequent regulation and orchestration of these processes in relation to cognitive object or data" (Flavell, 1979). In the words of Cross & Paris (1988), Metacognition is "The knowledge of children to have control over their own thinking and learning activities".

It is the "awareness and management of one's own thought" reported by Kuhn & Dean (2004). Martinez, (2006) said, "The monitoring and control of thought is metacognition". Metacognition is defined as a form of executive control involving monitoring and self-regulation (Kuhn & Dean, 2004; Schneider &Lockl, 2002). Schraw (1998) described metacognition as a multidimensional set of general skills. These skills help to provide prior knowledge on a subject during problem solving.

Critical thinking is reflective and reasonable thinking that is focused on deciding what to believe or do (Ennis, 1985).

Halpern (1998) defined that critical thinking is the use of cognitive skills or strategies that increase the probability of a desirable outcome.

Critical thinking is purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference (Facione, 1990).

Metacognition and critical thinking are reciprocally related. Schraw et al. (2006) viewed both metacognition and critical thinking as being subsumed under self-regulated learning, which they define as our ability to understand and control our learning environments. They found that self-regulated learning entails metacognition, motivation, and cognition, which includes critical thinking. Also results showed that good critical thinkers engaged in more metacognitive activities, especially high-level planning and high-level evaluating strategies. Metacognition is essential for the learning of critical thinking and problem solving skills (Van Gelder, 2005; Scruggs, 1985). Sadeghi Bahado et al. (2014) found that there was a positive correlation between metacognition and critical thinking and the mean score of male participants' critical thinking and metacognitive strategies was more from the mean score of the female participants. Carlo Magno (2010) found that critical thinking occurred when individuals used their underlying metacognitive skills and strategies that increased the probability of a desirable outcome. Also metacognition has a significant correlation with critical thinking. Hence metacognition and critical thinking are linked in the way of direct, continuous, and sustained engagement with critical-thinking behaviors. These behaviors are part of what could be considered scholarly dispositions.

OBJECTIVES OF THE STUDY

- To study the significant relationship between metacognition and critical thinking ability of higher secondary students.
- To study whether there is any significant difference in the mean score of metacognition of boys and girls.
- To study whether there is any significant difference in the mean score of critical thinking ability of boys and girls.

HYPOTHESES

1. There is no significant relationship between metacognition and critical thinking ability of higher secondary students.
2. There is no significant difference in the mean score of metacognition of boys and girls.
3. There is no significant difference in the mean score of critical thinking ability of boys and girls.

METHODOLOGY

The present study is a descriptive study. The target population for the study comprised of all higher secondary students of Kanyakumari district. The sample size consisted of 400 higher secondary school students drawn from 10 schools in Kanyakumari district. The sample was randomly drawn from selected higher secondary schools. The sample consisted of both boys and girls of age ranged from 16-19 years. To measure the metacognition and critical thinking ability of higher secondary students, the investigator used self- made validated tools such as metacognition inventory and critical thinking ability test.

PROCEDURE OF DATA COLLECTION

The investigator visited the schools and administered the tools. Instructions on how to respond to Metacognition Inventory and Critical Thinking Ability test were read to the participants. Filled response sheets were collected back and scored using the scoring key. Scores were tabulated for analysis and interpretation.

ANALYSIS OF DATA

Table 1: Relationdhip between Metacognition and Critical Thinking Ability of Higher Secondary Students

Variables	r-value	Level of Significance
Metacognition vs. Critical Thinking Ability	0.425	0.05

Table-1 shows that the calculated r-value 0.425 is significant at 0.05 level. Hence there exists positive moderate correlation between metacognition and critical thinking ability of higher secondary studnets. Therefore the hypothesis-1 is rejected.

Table 2: Mean, SD, and t-value of Metacognition of Boys and Girls

Gender	Mean	SD	N	t-value	p-value	Level of Significance
Male	8.30	2.71	204	1.979	0.049	0.05
Female	8.93	3.58	196			

Table-2 depicts that the calculated t-value ($t=1.979$; $p<0.05$) is significant at 0.05 level. Therefore the hypothesis-2 is rejected. Also it is clear that the mean score of metacognition of girls is 8.93 which is significantly higher than that of boys whose mean score is 8.30. It may therefore, be said that girls are found to have significantly higher metacognition than those of boys.

Table 3: Mean, SD, and t-value of Critical Thinking Ability of Boys and Girls

Gender	Mean	SD	N	t-value	p-value	Level of Significance
Male	10.62	3.05	204	1.99	0.04	0.05
Female	11.26	3.34	196			

Table-3 indicates that the calculated t-value ($t=1.99$; $p<0.05$) is significant at 0.05 level. Therefore the hypothesis-3 is rejected. Also it is clear that the mean score of critical thinking ability of girls is 11.26 which is significantly higher than that of boys whose mean score is 10.62. It may therefore, be said that the girls were found to have significantly superior critical thinking than those of boys.

EDUCATIONAL IMPLICATIONS

The findings of the study have certain implications in developing improved educational practices.

- Metacognitive approach can be used for teaching to develop Critical thinking.
- Library reading can be encouraged to develop metacognition.
- Modelling approach can be used to enhance metacognition.
- Cooperative learning approach could be used for teaching to enhance metacognition critical thinking ability.
- Peer tutoring and Group discussions can be encouraged to enhance metacognition.

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