

# Metacognition and hemisphere Dominance among the High School Students

Dr. M. Nageswara Rao

Associate Professor, Master of Education

MNR Rural PG College of Education, Sangareddy, Telangana, India.

## Abstract

This research paper emphasizes that the relation between the Metacognition and Hemispheric dominance among the class ten High school students and also relationship between the student's metacognitive abilities and Hemispheric dominance Sangareddy Town, Telangana State, India. Moreover, Students develop the positive attitude through the knowledge of cognition and regulation of cognition abilities in the academic achievements his own.

**Key words:** *Metacognition, and Hemisphere Dominance*

## Preamble

The word metacognition has Greek origin. The Greek prefix 'meta' means 'to transcend'. Hence, the construct 'metacognition' refers to thinking that transcends first level of thinking. It refers to second order knowledge or function (Biechler & Snowman, 1986 & 1990). A commonly quoted definition of metacognition is given by Flavell (1976) who is considered as a pioneer in the field of metacognition. We engage in metacognitive activities every day. Metacognition enables us to be successful learners, and has been associated with intelligence. Metacognition refers to higher order thinking which involves active control over the cognitive processes engaged in learning. Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are metacognitive in nature. Because metacognition plays a critical role in successful learning, it is important to study metacognitive activity and development to determine how students can be taught to better apply their cognitive resources through metacognitive control.

"Metacognition" is often simply defined as "thinking about thinking", it means "knowledge and cognition about cognitive phenomena. In actuality, defining metacognition is not that simple. Although the term has been part of the vocabulary of educational psychologists for the last couple of decades, and the concept for as long as humans have been able to reflect on their cognitive experiences, there is much debate over exactly what metacognition is? One reason for this confusion is the fact that there are several terms currently used to

describe the same basic phenomenon (e.g., self-regulation, executive control), or an aspect of that phenomenon (e.g., meta-memory), and these terms are often used interchangeably in the literature. Researches also clarifies that metacognition has several “diverse functions as Language” such as Meta-memory, meta-comprehension, problem-solving and critical-thinking. Finally, metacognition refers to knowledge of cognition and regulation of cognition.

Metacognition also involves thinking about one's own thinking process such as study skills, memory capabilities, and the ability to monitor learning. This concept needs to be explicitly taught along with content instruction. Metacognitive knowledge is about our own cognitive processes and our understanding of how to regulate those processes to maximize learning.

Therefore, the present study focused on metacognitive awareness and it's relation with the educational perspective of hemispheric dominance. In addition to, gender differences are also studied.

**Significance of the Study:** A metacognitive environment encourages awareness of thinking. In the creation of a metacognitive environment, every teacher is monitor and apply their knowledge, deliberately modeling metacognitive behavior to assist students in becoming aware of their own thinking. Metacognitive strategies are already in teachers' repertoires. We must become alert to these strategies, and consciously model them for students. Problem-solving and research activities in all subjects provide opportunities for developing metacognitive strategies. Teachers need to focus student attention on how tasks are accomplished. Process goals, in addition to content goals, must be established and evaluated with students so they discover that understanding and transferring thinking processes improves learning.

Metacognitive Process develops in the academic perspectives depend on the Hemispheric dominance. Hemisphericity is three parts viz., Left Hemisphere Dominance, and Right Hemisphere dominance. Correlation of metacognition and hemispheric dominance improve the learning experiences in high School study. Students will enable to understand these areas and successfully cope with new situation with the encouragement of the class teachers. They will also enable students to successfully cope with new situations. Teachers and capitalize on their talents as well as access a wealth of resources that will create a metacognitive environment which fosters the development of good thinkers who are successful problem-solvers and lifelong learners. The research findings would provide knowledge about interrelationship among metacognition and hemispheric dominance. This would not only contribute to the knowledge base of metacognition but may also help researchers to develop programs that promote metacognitive learning.

**Objectives:** The following objective is delineated on the basis of the statement of the problem of the study. That is, to study the relation between metacognitive awareness and hemispheric dominance.

**Variables of the Study:**

1. Metacognitive Awareness(MA): Knowledge of Cognition (KC),and Regulation of Cognition(RC)
2. Hemispheric Dominance(HD): Left- Hemispheric Dominance(LHD), Right - Hemispheric Dominance(RHD), and Whole Brain Orientation(WBO).

**Null Hypotheses:** The following null hypotheses were formulated to test the research hypotheses.

There is no significant correlation between metacognitive awareness as measured by AMI and hemispheric dominance as measured by the SOLAT in class ten students.

There is no significant correlation between metacognitive awareness and left hemispheric dominance in class ten students.

There is no significant correlation between metacognitive awareness and right hemispheric dominance in class ten students.

There is no significant correlation between metacognitive awareness and whole hemispheric dominance in class ten students.

**Population and Sample:** Population for the present study consists of class ten English medium High Schools in Sangareddy Town, Sangareddy district, Telangana State(TS), India. Those schools are affiliated by TS State Board. The age range of the students is from 14-15 years, academic year 2017-18. Total sample is 163. Sample was taken from the whole population. In this research, there is no gender importance.

**Tools Used:** On the basis of the research objective and hypothesis the following two standardized self-report instruments were selected to measure the selected variables. Metacognitive Awareness Inventory scale was developed by Schraw and Dennison (1994), and Styles of Learning and Thinking scale developed by Torrance et al. The SOLAT questionnaire consists of 28 items Descriptive statistics were used for the present study variables viz., MA: KC and RC, HD: LHD, RHD and WBD. Pearson's product moment correlation coefficient was used to test hypothesis.

**Data analysis:** Reliability Analysis on the present sample is tested through Cronbach's Alpha. Table 1: Cronbach's Alpha and means and SD values of the tests

Tests	Cronbach Alpha	Mean	SD
MAI	0.879	212.385	21.63

SOLAT	0.719	45.6001	5.810
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Table 2: Correlation between components of metacognitive awareness and hemispheric dominance, right hemispheric dominance and whole brain orientation (N=163)

Hemispheric Dominance	Knowledge of Cognition	Regulation of Cognition	Metacognition Awareness
R H D	-0.071	-0.080	-0.082
L H D	-0.047	-0.017	-0.029
W B O	0.153**	0.125*	0.143**

\* Significant at .05 level; \*\* Significant at .01 level

**Findings:** On the basis of the findings the conclusions of the study drawn are: There is significant positive correlation between metacognitive awareness and hemispheric dominance in class ten students. The observation and Interpretation shown that there was no correlation between left-brain dominance, right-brain dominance with metacognitive awareness. These negligible correlations were also observed to be insignificant. This shows that no particular hemispheric dominance or whole brain dominance is correlated with Metacognitive awareness, hence null hypothesis has been rejected. Thus, null hypothesis stated as there is no correlation between Metacognitive Awareness and LHD and RHD in standard ten students is accepted. However, there is a positive correlation between whole-brain dominance and Metacognitive Awareness. Further, the results show that whole-brain is highly correlated with KC, followed by MA and the lowest with RC. These results indicate that students with high levels of whole-brain orientation are high in KC followed by MA and then RC.

**Conclusion:** Hemisphericity refers to the idea that each individual may tend to rely on a preferred mode of cognitive processing which in turn implies the predominant activity of either of left or right brain cerebral hemispheres (Beaumont, Yound & Mc Manus, 1984). Present study positive correlations are observed between metacognition and hemispheric Dominance. Besides, effective learning involves applying the appropriate style of processing to the task, if a learner is highly biased towards one mode of processing; one quadrant or one side of the whole brain model, he will tend to approach tasks in that mode even when it is not the most appropriate mode; even when it is not likely to lead to success. The art of being an effective learner and ‘doer’ is having the ability to draw on the suitable mode for the task. The art of being an effective teacher/instructional designer is to engage the learner in the appropriate thinking mode(s) for the task. Thus



metacognition develops the only positive thinking and learning. Moreover, self awareness and judgemental functions completely depends on the whole brain. And also improves the retrieving capabilities among the high school students. Subsequently, it helps in preventing failure and improving academic achievement.

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