Effectiveness of metacognitive thinking programme for 9th standard students of Gujarat state

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Abstract: *The purpose of the study was to find out effectiveness of the metacognitive thinking programme for the students of class IX. Use standardized metacognitive thinking inventory while development and implementation of the metacognitive thinking programme during this research study.*

Key Words: *Effectiveness, Implementation, Metacognitive Thinking Programme, SES, 9th standard students.*

1. INTRODUCATION:

The idea of metacognition has become a popular part of today's education world. Metacognition is the awareness of a person's own cognitive system and how the system works. Researchers, educators and teachers are deeply concerned about the type, process and levels of knowledge gained by children in school. In modern education, metacognitive has become an important and thought-provoking topic of thinking.

2. OBJECTIVES:

The study was carried out with two types of objectives,

(A) Task objectives:

1. To develop programme for enhancing Metacognitive thinking for students of class IX.
2. To implement programme for enhancing Metacognitive thinking on students of class IX.

(B) Research objectives:

1. To study the effectiveness of Metacognitive thinking programme.
2. To study the effectiveness of Metacognitive thinking Programme in relation to SES.

3. VARIABLES:

1. Independent variables

The independent variable for the present study was Metacognitive Thinking Programme.

2. Secondary Independent Variables

The Secondary Independent variable for the present study was- SES- (High SES - Low SES)

3. Dependent variables

Metacognitive thinking score obtained by the student of class 9th on Metacognitive Thinking Inventory.

4. Control variable

The control variable for the present study was

- Standard – 9
- Content Matter

4. RESEARCH DESIGN:

In the present study investigator had selected One-Group Pretest-Posttest Design. Metacognitive thinking programme was given to students and Metacognitive thinking inventory were administered as a pre-test and post-test to find out effectiveness of the programme.

Table-1 Research Design

Pre-test	Treatment (Independent Variable)	Post-test
O1	X	O2
Metacognitive Inventory	Metacognitive Thinking Programme	Metacognitive Inventory
Mean Score 'P'		Mean Score 'Q'
Treatment Effect = Q – P		

5. HYPOTHESES OF THE STUDY:

The following hypotheses were formulated in pursuance of the objectives and variables of the study.

1) There will be no significant difference between the mean scores of metacognitive thinking for pre-test and post-test.

SES

1) There will be no significant difference between the mean scores of metacognitive thinking of students having High SES in pre-test and post- test.
2) There will be no significant difference between the mean scores of metacognitive thinking of students having Low SES in pre-test and post-test.

6. RESEARCH METHOD:

The main purpose of the present study was to develop Metacognitive thinking programme and study its effectiveness for the students of class IX. Present study was carried out in two important phases.

Phase: 1 Development of metacognitive thinking Programme

Phase: 2 Implementation of metacognitive thinking Programme

6.1 POPULATION:

The investigator had decided to develop Metacognitive thinking Programme and perform the experiment with students of class IX. The population consisted of students of class IX of Gujarati medium schools of Anand district of Gujarat state. Students of class 9th A of Anand High School, Anand were selected as a sample for the implementation of Metacognitive thinking programme.

Table -2
Sample for the Implementation of Metacognitive Thinking Programme

Boys	Girls	Total
28	24	52

6.2 TOOLS FOR DATA COLLECTION:

(A) Cognitive Activities: Cognitive activities were developed by the investigator.

(B) Metacognitive Inventory:

Metacognitive thinking inventory Constructed and standardized by the Dr. R. S. Patel. Reliability of the test was 0.75 by test retest method and 0.90 by split of method. Criterion and construct validity were 0.73 and 0.78 respectively.

(C) Metacognitive Thinking Programme:

Metacognitive thinking programme was developed by the investigator. Following components were selected for Metacognitive thinking programme:

1) **Metacognitive knowledge:** Declarative Knowledge**,** Procedural Knowledge Conditional knowledge
2) **Metacognitive regulation:** Planning**,** Monitoring**,** Evaluating

(D) Socio-Economic Status Scale :

Socio- Economic Status Scale prepared by Dr. Pallaviben P. Patel was used to measure Socio- Economic Status of the students. Students with High Socio- Economic Status (High SES) and students with Low Socio-Economic Status (Low SES) were found by the use of this scale.

6.3 METHOD OF DATA COLLECTION:

Metacognitive thinking programme was implemented to find its effectiveness. For that metacognitive thinking test were administered for data collection as pre-test and post-test. Effectiveness of the metacognitive thinking programme was also found for variables like socio economic status scale constructed and standardized by Dr. Pallaviben .P. Patel was used to collect data.

7. ANALYSIS OF DATA:

Metacognitive thinking inventory developed by Dr.R.S.Patel was used as Pre-test and Post-test for finding out effectiveness of metacognitive thinking programme. Effectiveness of metacognitive thinking programme was found with reference to certain like SES Descriptive statistics of Pre-test and Post-test data were computed. To test the hypotheses t test was computed. Details of hypotheses testing are given below.

Hypothesis – 1 There will be no significant difference between the mean scores of metacognitive thinking for pre-test and post-test.

Descriptive statistics For Pre-test and Post-test data

1. Mean score and S.D. of pre-test score are 127.77 and 15.94 respectively and that of post-test score are 150.64 and 10.43 respectively.
2. Obtained t-ratio is 8.66, which is significant at 0.01 level of confidence.

Therefore, Hypothesis – 1 "There will be no significant difference between the mean scores of metacognitive thinking for pre-test and post-test" is rejected at 0.01 level of confidence. So the alternate research hypothesis, "The mean score of metacognitive thinking for post-test would be higher than pre-test" was accepted. Thus, metacognitive thinking programme was found effective for the students of class IX.

Hypothesis – 2 There will be no significant difference between the mean scores of metacognitive thinking of students having High SES in pre-test and post- test.

Table 3

Descriptive statistics For Pre-test and Post-test data for High SES Students

High SES(Students)	N	Mean	SD	t	Sign.
Pre-Test	14	148.43	4.11		
Post-Test	14	168.93	2.34	16.27	0.01

Descriptive statistics for Pre-test and Post-test data for High SES Students

1. Mean score and S.D. of Post-test score for High SES Pre-test are 148.43 and 4.11 respectively and that of High SES Post-test are 168.93 and 2.34 respectively.
2. Obtained t-ratio is 16.27, which is not significant at any level of confidence.

Therefore, Hypothesis-2 "There will be no significant difference between the mean scores of metacognitive thinking of High SES students in Pre-test and Post- test." - was rejected at 0.01 level of confidence. So the hypothesis was accepted. Thus, metacognitive thinking programme was found more effective for students having high SES.

Hypothesis – 3 There will be no significant difference between the mean scores of metacognitive thinking of students having Low SES in pre-test and post-test.

Table 4

Descriptive statistics For Pre-test and Post-test data for Low SES Students

Low SES(Students)	N	Mean	SD	t	Sign.
Pre-Test	14	114.57	14.83		

Descriptive statistics for Pre-test and Post-test data for Low SES Students

1. Mean score and S.D. of Post-test score for High SES Boys are 114.57 and 14.83 respectively and that of High SES Girls are 144.29 and 6.35 respectively.
2. Obtained F-ratio is 6.90, which is not significant at any level of confidence.

Therefore, Hypothesis-3 "There will be no significant difference between the mean scores of metacognitive thinking of Low SES students in Pre-test and Post- test." - was rejected at 0.01 level of confidence. So the alternate hypothesis "The mean score of metacognitive thinking of students having Low SES Post-test would be higher than for Pre-test" was accepted.

8. CONCLUSION:

Based on the present study, the investigator felt the need for undertaking the following studies regarding metacognitive thinking.

1. Metacognitive Thinking Programme could be included in teacher education training programmes for trainees to develop understanding of Metacognitive Thinking
2. Components of Metacognitive Thinking could be used classroom interaction in various subjects.
3. Areas of Metacognitive Thinking could be found in curriculum to enhance Metacognitive Thinking.

REFERENCES:

1. Baker, L. (2008). *Metacognitive development in reading: Contributors and consequences.* In K. Mokhtari & R. Sheorey (Eds.), Reading strategies of first and second language learners: See how they read. Norwood, MA: Christopher Gordon.
2. Blakey, E., & Spence, S. (1990). *Developing metacognition.* ERIC Digest [4]
3. Flavell, J.H. (1979). *Metacognition and cognitive monitoring. A new area of cognitive-development inquiry. American Psychologist*: 906–911.
4. Gourgey, A.F. (1998). *"Metacognition in basic skills instruction"*. Instructional science 26: 81–96.
5. Jennifer A. Livingston. *Metacognition: An Overview knowing about knowing.* Cambridge, MA: MIT Press.
6. Livingston, J. A. (1997). Metacognition: An overview. Retrieved from, http://gse.buffalo.edu/fas/shuell/cep564/Metacog.htm