CHAPTER - VIII

SUMMARY

Introduction

Education is undoubtedly the most potent sources through which every country faces the challenge of time and develops its unique social culture to maintain its identify at national or international level. The present age the education system is child centered and every possible efforts is concentrated to exploy many dimensional faculties of the children which are mostly related to the mathematics. Since mathematics has important role in every branch of learning, its importance in metacognition is greater than in any other branch of learning. Much efforts have been directed to collect the materials from diverge sources and the studies of psychologist and educationist and a deep survey has been made of the classroom situations.

In the teaching of mathematics metacognitive values have to be given top priority to drive out most successful result. The term metacognition was recently found in the field of cognitive psychology. Research invoking the term metacognition or one of its derivatives such as metamemory or meta learning is young. The term were not used until the 1970's and metacognition did not became a descriptor in the Educational Resource Information Centre System until 1980. However other words from the history of psychology dealt with similar conceptions. Metacognition has played a vital role inrichment in school situation. Realising its importance an attempt has been made in the present study to correlate the achievement scores in mathematics and metacognition.

Origin of the Study.

The present investigation has originated from felt need of the justification to provide better educational opportunity is a basic problem of many developing countries. Since mathematics plays a important role in every branch of learning therefore in the present study the mathematics achievement of the students have been correlated with their meta-cognitive approaches. This is reason the study of metacognition has became very significant in recent years with extensive research, exploring the development of the children knowledge.

The Problem.

The title of the present study as follows:

"ACHIEVEMENT IN MATHEMATICS AND METACOGNITION:
A CORRELATIONAL STUDY".

Objectives.

The present study is being conducted in order to accomplish the following objectives.

(i) To study the metacognitive strategy of elementary school children.

(ii) To find out whether there is any influence of group on metacognitive strategy.

(iii) To find out the sex difference on metacognitive strategy.

(iv) To find out the relationship of metacognitive strategy and achievement in mathematics.

(v) To find out the relationship between metacognitive and reasoning ability.

(vi) To explore how for metacognitive strategy is different between high and low achievers in mathematics.

Variables:

(I) Independent Variables:

The following variables were choosen as independent variables for the present study.

(i) Age.

(ii) Sex.

(iii) Level of Achievement.

II. Dependent Variables:

The following variables were included as dependent variable -

(i) Metacognitive strategy

(ii) Achievement in mathematics

(iii) Reasoning Ability.

Hypothesis:

The following null and directional hypothesis have been framed to achieve above mentioned objectives:

(i) Ho - There will be no different between the students of high and low groups on metacognitive score.

(ii) Ho - There will be no difference between boys and girls in term of their metacognitive score.

(iii) Ho - There will be no intraction effects of sex and group on metacognitive score.

(iv) Hi - There will be positive relationship between metacognitive scores and achievement in mathematics.

(v) H1 - There will be positive relationship between metacognition and reasoning ability.

(vi) H_1 - High achievers in mathematics subject will be better in their metacognitive scores in comparision to low achievers.

Selection of Sample:

The sample of the present investigation was selected from the different Government to Private schools of (Uttar Pradesh and Rajasthan). The sample is containing 80 children (40 boys and 40 girls) of elementary school from both States. The critoria of the selection of the sample were made according to the marks obtained by the student in mathematics in his half yearly examination. From the total 60% and above 60% marks obtaining students has been put in high group and 40% and below 40% marks obtaining students in low group. Out of these 40 boys, 20 high group and 20 low group are taken from these two States. Such type of selection made for the girls (i.e. 20 high group, 20 low group).

SAMPLE STRUCTURE BY GROUP AND SEX

Variables	Sex				
Group	Boys		Girls		Total
	Boys of High Group	Boys of Low Group	Girls of High Group	Girls of Low group	
	20	20	20	20	80

Figure 4.1

Tools Used:

The following tools used for observation and recording the metacognitive strategy, reasoning ability and achievement in mathematics.

(i) Metacognition questionnaire adopted by Rath (1993) on the pattern of Swanson (1991).

(ii) Matrices test from British Ability Scales for the reasoning ability.

(iii) Achievement in mathematics is concerned from the half yearly examination record.

Administration of Tests and Procedure of Data Collection:

First the matrices test was administered as for the instruction prescribed in the manual of (B.A.S.) Then on another day metacognition questionnaire was administered. The achievement marks related to mathematics was obtained from the half yearly examination record. All the data were organised and coded for computer analysis.

Statistical Tools Used:

Both types of statistics were used to analyse the data. In the descriptive statistics mean, S.D. were calculated on in metacognition questionnaire, reasoning ability and achievement in mathematics. Correlation was computed to assess the extent of relationship between high and low mathematics achievement score with their obtained

metacognitive score. Also F-ratio test, two way (ANOVA) and discriminant analysis were used, were the parts of inferential statistics.

Major Findings:

The finding of the present study are as follow:

Summary Results of Section I:

(i) The real difference between the high and low group on achievement score in mathematics but there is no difference of between boys and girls on achievement in mathematics.

(ii) Reasoning is not an significant influencing variable for mathematics achievement and there is no difference between boys and girls in the reasoning score.

(iii) Age has a significant impact in mathematics achievement and in metacognition score but the age has not a significant impact in the reasoning score.

(iv) The better performance in mathematics related to the metacognitive strategy adopted by the students. But there will be no difference between boys and girls in term of their metacognitive score.

(v) There is an independent effect of group on metacognition but no independent effect of sex and there intraction effect are determined.

Summary Results of Section II.

Metacognition has a possitive significant correlationship achievement in mathematics in case of all categorised variables. But there is no significant relationship between metacognition and reasoning ability. Therefore inspite of positive relationship between metacognition and reasoning ability the coefficient is not significant.

Above all it found that higher metacognitive awareness will lead to higher learning performances.

Summary Result of Section III.

(i) Mathematics score and metacognition are the powerful discriminator of high and low group and metacognitive competence is highly responsible for the performance in mathematics.

(ii) In the case of high and low achievement group in mathematics, through metacognition is not a powerful discriminator but correctly classifies both the groups.

On the basis of these findings educational implications are suggested for assessment and teaching practice. Further researches are focused on the sex differences on metacognition and factors influence the development of metacognition.

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