

EFFECT OF METACOGNITION ON THE ACADEMIC ACHIEVEMENT OF STUDENTS

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ABSTRACT

In the present research paper the researcher has tried to explore what is metacognition? How is it related to the academic achievement of students and how it affects academic achievement of the students? It also supports that teachers need to help children develop metacognitive skills and also talks about the strategies required to develop metacognition in students. The study was carried out in a survey form in which a sample of 403 students was taken. The study basically tried to explore the relationship of metacognition and academic achievement. The findings revealed that there exists a positive relationship between academic achievement and metacognition and students belonging to different categories of metacognition do differ from each other with respect to academic achievement. The positive relationship between the two variables does indicate that metacognition do supports academic achievement.

Introduction

Metacognition is one word which is gaining popularity day by day. The importance of metacognition in human thinking, learning and problem solving is well established. Humans use metacognitive monitoring and control to choose goals, assess their own progress and if necessary, adopt new strategies for achieving those goals, or even abandon a goal entirely.

The term metacognition was introduced by Flavell in 1976 to refer to the individuals own awareness and consideration of his cognitive process and strategies. It also refers to that unique human capacity of people to be self reflexive, not just to think and know but to think about their own thinking & knowing. Metacognition refers to higher order thinking that involves active control over the thinking process involved in learning. Because metacognition plays a critical role in successful learning it is important for both students & teachers. Metacognition has been linked with intelligence and it has been Shown that those with greater

metacognitive abilities tend to be more successful, most definitions of metacognition include both knowledge and strategy components. Knowledge is considered to be metacognitive if it is actively used in a strategic manner to ensure that a goal is met. It is often referred to as "thinking about thinking" & can be used to help students "learn how to learn". Cognitive strategies are used to help achieve a particular goal while metacognitive strategies are used to ensure that the goal has been reached. Flavell (1979) also suggest that this ability changes with age and that older children are more successful learners because they have internalized a greater quantity of metacognitive information. The failure to use these strategies however may not be related so much to age but to experience and teacher's interventions can help even young children to develop some of the metacomponents that are the strategies of successful learning.

Now, the question arises that what are these metacognitive strategies? The metacognitive strategies are as under:

One should identify "What one knows and what one doesn't know, (ii) Teacher should also talk about one's thinking process, (iii) Planning and self regulation and (iv) Self evaluation. So, these are certain strategies which may help students to think metacognitively.

The second variable of the study is academic achievement which can be described as what students can do when they have finished a course of study. Therefore an attempt has been made to examine the relationship between metacognition & academic achievement.

Ehrlinger & Kruger (2003) has already proved that metacognition is important in learning and is a strong predictor of academic success. It is also believed that students with good metacognition demonstrate good academic performance compared to students with poor metacognition. Students with poor metacognition may benefit from metacognitive training to improve their metacognition and academic performance. Metacognition enables students to be strategic in their learning by, for instance, learning new information and by learning information in an innovative way rather than focusing on studying information already learned. (Everson and Tobias, 1998).

Moreover, it is always interesting to analyze one's strengths and weaknesses, and helping the student to use that knowledge for improvement. Metacognitive differences between high and low achievers also prove the same. High achievers usually explain things to themselves as they work they also try to construct relationships between the new process and what they already knew. They also tend to infer additional information that wasn't directly given. And as against the low achievers who followed the things step-by-step but without relating it to anything they already knew, they don't construct any broader understanding of the procedure that would enable them to generalize it to new situations.

Therefore the present study was carried out with the following objectives:-

1. To find out the different levels of metacognition among students.
2. To find out the relationship between metacognition and academic achievement of students.
3. To find out the influence of metacognition on the academic achievement of students.

Hypotheses:

1. There is no significant relationship between metacognition and academic achievement.
2. Metacognition does not influence academic achievement of students.

Methodology: The investigator took a survey type of study to accomplish this research, the sample considered was of 403 students of eleventh grade. To collect the data on the sample the investigator used the tool constructed by Punita Govil for metacognition and to know the academic achievement, student's previous year's annual exam marks were taken into consideration. In this survey the researcher has tried to find out the different levels of metacognition among the students, to analyze the relationship between the metacognition and the academic achievement. The researcher also wants to find out the influence of various categories of metacognition on the academic achievement of students. The hypotheses of the study have been verified and shown as under:

1.1 Levels of Metacognition:

The first objective of the study is to find out the level of metacognitive ability possessed by the eleventh graders. The arithmetic mean and standard deviation for metacognition scores are found to be 86.90 and 10.983 respectively. The present sample is divided into five categories as described in table 1.1 Range of scores; frequency and percentage of different categories are given in table 1.1

Table 1.1 Range of Scores, Frequency and Percentage of different categories of Metacognition

Category	V. good	good	average	poor	V. poor
Ranges of scores	Above 103.37	92.09 to 103.37	81.71 to 92.09	70.43 to 81.71	Below 70.43
Frquence	18	71	201	100	13
Percentage	4.5	17.6	49.9	24.8	3.2

From the above values it is evident that majority of students fall in the moderate category i.e. 49.9% followed by low (24.8%), high (17.6%), V. high (4.5%) and V. low (3.2%) respectively. The obtained values are found to be highest in the average category which further proves that there is need to improve the metacognitive abilities of students.

1.2 Relationship between Metacognition and Academic Achievement

The first hypothesis of the study states that there is no significant relationship between metacognition and academic achievement. This hypothesis is verified & shown below.

Table 1.2 Significance of 'r' between Metacognition and Academic Achievement

Variables	r	df	sig.
Metacognition	.196**	401	0.001
Academic Achievement			

The value of 'r' is found to be significant hence the hypothesis is rejected. This indicates that there is a significant positive relationship between metacognition and academic achievement. This further indicates that greater will be the metacognition higher will be the academic achievement. Hence if we have to increase the academic achievement of the students we should try to increase their metacognitive skills.

1.3 Influence of metacognition on academic achievement

The second hypothesis of the study states that there is no significant difference between students belonging to different categories of metacognition in respect of academic achievement. This hypothesis is verified and shown in

Table 1.3

Significance of 'F' between categories of metacognition on academic achievement

Sources	Sum of Squares	Mean Square	df	F	Sig
Between group	1769.009	442.252	4	4.795	0.001
Within group	36711.593	92.24	398		
Total	38480.602	-	402		

The value of 'F' is found to be significant hence the hypothesis is rejected. This implies that there is significant difference between students belonging to different categories of metacognition in respect of academic achievement. This further means that the regulation of cognitive process and metacognitive knowledge do influence eleventh graders academic achievement hence we can say that the students who have good knowledge about their cognitive processes know how to overcome the hurdles coming in their academic areas.

Table 1.3.1 Value of 't' between different categories of metacognition in respect of academic achievement

Metacognition categories		t	Sig
Very high	HIGH	0.788	0.934
	Average	0.49	0.988
	Low	1.786	0.383
	very low	0.601	0.975
HIGH	Average	2.38	0.123
	Low	4.289	.000*
	very low	1.414	0.619
Average	Low	2.75	0.048
	very low	0.3426	0.997
	very low	0.809	0.928

The values of 't' in the above table is found not to be significant for almost all the categories except between high and low and between average and low categories. It further shows that except for the two categories mentioned above the students belonging to different categories of metacognition do not differ from each other in respect of academic achievement. Further on observing the mean it was found that the values of means are in decreasing order from very good through average to very low categories of metacognition in respect of academic achievement. This further proves that metacognition do influence the academic achievement of the students.

Conclusion:

In this rapidly changing world, the challenge of teaching is to help students develop skills which will not become obsolete. Metacognitive strategies are essential for the coming generation as they will enable students to successfully cope with new situations, Teachers & school administration capitalizes 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. As metacognition helps children make the most of their mental resources teachers should try to develop these metacognitive strategies among students as much as they can. Moreover, the present study also proves that metacognition and academic achievement go hand in hand. Hence the teachers should employ metacognitive methods while teaching the contents.

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