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Metacognitive Cues: Enhancing Achievement in the Context of Learning Styles

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ABSTRACT: *The study aimed at the understanding of the effect of metacognitive cues on the academic achievement of students with various learning styles. Data was collected from ninth grade students studying in a school. The learning style of the students was further identified to form groups. After given metacognitive cues, results revealed a significant effect on academic achievement in all three groups, namely A, V and K though not significant in the visual style of learning.*

KEYWORDS: Metacognitive cues, Learning style, Academic achievement

INTRODUCTION: Learning is the process by which an individual acquires various habits, knowledge, attitude and experiences that are necessary to meet the elements of life in general. Education is the tool which serves as the tool for any kind of learning. Different subjects are imparted to the students in schools in the process of learning. Learning science needs a deeper, creative and critical thinking skill. Science is a systematic study of the facts and discovery of the reason for a happening. Learning science needs a deeper, more transferable thinking. Using organized and meaningful strategies leads to enhanced academic achievement. Though there are a number of factors which determine the quality of educating the most vital one that attracts the attention of one and all is the level of achievement.

People differ in the ways they approach learning. All students have strengths and abilities, but each student may have a preferred way of using these abilities for learning. Claxton and Ralston (1978) defined learning styles as a student's consistent way of responding to and using stimuli in the context of learning. Some people prefer learning verbally; while others prefer materials that are more visual-spatial. The way in which the students approach the learning situations demines their learning style. One who learns best by seeing is a visual learner; one by listening is an auditory one and one who learns best by doing is a kinesthetic one. The question now arises- Why not teach the individuals according to their interest to optimize learning? The one promising way by which science can be learnt meaningfully is by making the students aware of the metacognitive cues which are helping them retain knowledge better. By imparting knowledge concerning one's own cognitive process and product. Metacognition literally means knowing or thinking about thinking. Antoniettti (2000) supported that high metacognitive levels are associated with the best performance. It

is an admiration of what one already knows, together with correct knowledge of the learning task.

Visual learners can be imparted knowledge by using concept maps and highlighting the important textual matter, the use of mnemonic devices and melody in lectures for auditory learners. Learning by doing has always been beneficial in creating permanency in knowledge more so in kinesthetic learners.

Once the students are aware of the regulation of their cognition, they are able to comprehend the knowledge in a more systematic way, thereby improving their academic performance.

OBJECTIVE OF THE STUDY:

To study the effect of metacognitive cues on the science achievement of students in relation to their learning styles.

HYPOTHSIS OF THE STUDY:

There will be significant effect of metacognitive cues on the achievement of students in relation to their learning style.

METHOD:

Sample:

Students of class 9 of English medium school were selected for the study through purposive sampling method.

Design:

The present study was experimental in nature with one group pre-test& post-test design. The sample was divided into three groups on the basis of their learning style. The three groups were tested on their achievement in science, specifically on the topic "sound". The three groups were taught the same topic with different metacognitive cues according to their learning styles. The scores on the same were again measured.

Tools Description:

VAK questionnaire was used to measure the learning style. The questionnaire helps to discover the learning style of a student. It consists of 18 items with 3 options in each. Each option describes the nature of one's learning style.

A- Auditory

V- Visual

K- Kinesthetic

The student has to select his preference of learning style. If one has scored mainly V's is categorized as a visual learner and if the number of A's are more, the student categorized as a auditory learner and the same as follows with kinesthetic.

STATISTICAL ANALYSIS:

The collected data of achievement scores were tabulated and t test of significance was calculated.

Table # Mean, S.D. and t value of students with various learning styles

LEARNING STYLE	PRE-TEST SCORES		POST–TEST SCORES		df	t-value
	MEAN	S.D	MEAN	S.D		
Auditory	**16.1**	**1.42**	**18.0**	**2.38**	**20**	**3.22****
Visual	**14.11**	**3.63**	**15.56**	**3.23**	**16**	**1.27**
Kinesthetic	**13.38**	**4.27**	**16.38**	**2.64**	**14**	**2.26***

* Significant at 0.05 level

**Significant at 0.01 level

RESULT AND INTERPRETATION:

To examine the significance of difference between students given metacognitive cues of auditory learners, the obtained data was treated with t-test (3.22), $p<0.01$. The mean value (18.0) indicates a better score in achievement when given metacognitive cues then the mean (16.1) without metacognitive cues.

It is evident from the table that there is no significant difference in the mean scores in case of visual learners. However, the mean score (15.56) of post-test is higher than the mean score (14.11) of pre-test. The t-test score of academic achievement of kinesthetic learners is significant with the mean score of achievement (16.38) of post test .

DISCUSSION:

The results depict that metacognitive cue i.e. creating awareness about the thinking process has proved beneficial in enhancing the achievement of the students. The mean scores in achievement in all students irrespective of their learning styles are more in the post-test. However, t –value in auditory ones is significant at 0.05 level of significance but the values in other styles of learning are not significant. It has been observed that the metacognitive intervention in case of low achievers has helped in improving the achievement. The results are supported by the findings of Antonieiti (2000).

CONCLUSION:

Following conclusion can be drawn from the present study:-

- Auditory and kinesthetic learners performed better when given metacognitive cues.
- However, visual learners did not show any significant effect on academic achievement.

IMPLICATION OF THE STUDY:

In the present days scenario, educationist encourages students to understand how they learn best. It helps to develop self awareness and control his own cognitive performance. Students often show an increase in confidence when they built metacognitive skills.

Teachers should encourage students to adopt metacognitive strategies that there offer them as tools to drive their brains. Auditory learners can be encouraged to repeat, self-talk and engage in verbal discussion, listen to audio-tapes to learn better.

Good visual designs are cognitively efficient and it makes metacognitive activity for visual learners to learn faster. For instance, well marked paragraph with words and phrases in italic stand out from the rest of the text in a distinct manner. Such cues are cognitively efficient.

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