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Reflection on Metacognitive Strategies – Teaching Learning Perspective

Education

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ABSTRACT

From the perspectives of instructional methodologies metacognition which involves more efficient use of strategies are found desirable. Metacognition benefits the learners more than any other learning methodology. Because in a metacognitive environment, thinking, planning, goal setting, problem-solving, evaluating, informing and connecting education with life etc., come into play in a big way. In this paper focus on the reflection of metacognitive strategies and the corresponding creation of metacognitive environment to facilitate effective teaching and learning.

INTRODUCTION

Metacognition is an important concept in cognitive theory. It consists of two basic processes occurring simultaneously; viz., monitoring the progress as we learn, and making changes and adapting our strategies. When a student becomes more efficient in academic self-regulation, self-efficiency and self-reliance set in. This leads to an increase in motivation, which further strengthens the metacognitive regulation and monitoring. The active monitoring, consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective result in better learning. Metacognition involves learning about one's own thinking processes and learning how to learn. Metacognition processes include predicting, checking, monitoring and reality testing. It refers to the deliberate control of one's own cognitive action.

METACOGNITIVE STRATEGIES

Cognitive Strategies are used to help an individual to achieve a particular goal, while metacognitive strategies are used to ensure that the goal has been reached (Saravanakumar.AR & Dr.S.Mohan 2007). Cognitive and metacognitive strategies are closely intertwined and dependent upon each other, any attempt to examine one without acknowledging the other would not provide an adequate picture.

Dirkes (1985) identified three basic metacognitive strategies,

1. Connecting new information to former knowledge
2. Selecting thinking strategies deliberately
3. Planning, monitoring and evaluating thinking process

Metacognition encompasses self-knowledge of learning strategies and the ability to use this knowledge in an efficient and effective manner and reasoning strategies involved in several areas across co-operative, individualistic, and competitive structures. Metacognitive experiences involve the use of metacognitive strategies or meta cognitive regulation. Meta cognitive strategies are regular processes that one uses to control cognitive activities, and to ensure that a cognitive goal (understanding) has been met. These processes help to regulate and oversee learning and consist of planning and monitoring cognitive activities as well as checking the outcomes of those activities.

METACOGNITIVE STRATEGIC TRAINING

Metacognition has been linked to a wide variety of positive academic outcomes for students such as better results and performance on tests of intelligence. It has been proved by researches that gifted students use more metacognitive strategies than non-gifted students. There has also been research suggesting that learning disabled students can benefit from using these strategies. So it is important for teachers to be aware of metacognition, the methodology of inculcating those strategies among students and the pattern of measuring metacognition.

METACOGNITIVE STUDENT'S STRATEGIES

(The ability to ask and answer the following types of questions):

- What do I know about this subject, topic or issue?
- Do I know what do I need to know?
- Do I know where I can go to get some information, knowledge?
- How much time will I need to learn this?
- What are some strategies and tactics that I can use to learn this?
- Did I understand what I just heard, read or saw?
- How will know if I am learning at an appropriate rate?
- How can I spot an error if I make one?
- How should I revise my plan if it is not working to my expectations / satisfaction?

METACOGNITIVE TEACHER'S STRATEGIES

- Have students monitor their own learning and thinking (Example: have student monitor a peer's learning / thinking / behaving in dyad)
- Have students learn study strategies (e.g., SQ 3R, SQ 4R)
- Have students make predictions about information to be presented next based on what they have read
- Have students relate ideas to existing knowledge structures (important to have relevant knowledge structures well learned)
- Have students develop questions; ask questions of themselves, about what's going on around them (Have you asked a good question today?)
- Help students to know when to ask for help (must be able to selfmonitor, require students to show how they have attempted to deal with the problem of their own).

A metacognitive environment encourages awareness of thinking. This climate should exist right from kindergarten to professional training. At school level, children are expected to process and learn from information presented and constructed in context reduced texts. Since learning is an insight, teachers need to know the culture and the level of the children. Reflective teaching would be ideal for the central goal of education is to faster intelligence. The classroom tends to be more rigorous and of work producing". It requires on the part of students more active participation, identifying 'what they know' and 'what they do not know'; monitoring subsequently the learnt knowledge, regulating the learning process, and finally evaluating the attained knowledge. For such learning has to happen in students, teachers have to plan, monitor and assess their teaching process. The focus of the training is not in completing the portion, but by following the students' attainment level deciding the next operation. Thereby this training, rectifies errors, select appropriate operation for achieving the decided goal. To challenge the problems, the metacognitive strategies would be apt for teachers to be successful.

CONSTRUCTION OF SPECIFIC STRATEGY

With these ideas of scheme theory, perturbation and abstraction it becomes possible to see how metacognition might be interpreted in constructivist terms. Specific strategy knowledge regarding when where, and how to use a strategy results from Students representing the experiential records related to the use of the strategy. But it is more than that. Whereas the records

of experiences of specific strategy use may allow students to recall specific instances, empirical abstraction of those records results in more of a recognition template that can act as the assimilatory part of a scheme. This will allow a scheme to be called up when appropriate tasks are presented, but does not make it possible to treat the scheme as an object of thought. Rather such empirical abstractions broaden the range of applicability of a scheme, making possible the activation of the scheme in novel situations. This specific strategy knowledge that development of empirical abstraction provides information about the appropriateness of a scheme, and the strategies that emerge from the scheme, for a given situation. This metacognitive knowledge may also guide children to alternative schemes and strategies when circumstances do not allow them to use a familiar and appropriate scheme.

When a scheme becomes abstracted however, children become able to step back and look at the parts of a scheme. The scheme becomes an object of thought amenable to analysis by itself or by other schemes the child might possess. Thus, a child with an abstracted counting scheme will be able to reflect on that strategy and all of the information related to that strategy. At this point, metacognitive knowledge and awareness really begin to help guide scheme development. Not only will children be able to apply strategies to new situations, due they will also be able to reflection the strategies and the situations to which the strategies may be applied. This will help evolve extent specific strategy knowledge.

TEACHING OF METACOGNITIVE STRATEGY

The question of which Metacognitive strategies to teach to which group of children is an important issue. This decision will vary according to the nature and demands of the content and the characteristics and needs of the learners. As students learn and practice Metacognitive strategies they will gradually internalize these thereby allowing space for working memory for additional procedures and strategies. Thoughtful application of Metacognitive strategies is central to becoming a skillful thinker and accomplished learner (Saravanakumar.AR, 2008). O'malley & Chamot's maximal list of strategies are the higher order executive skills that may entail planning, monitoring or evaluating the success of a learning activity. They are advanced organizers, directed attention, selective attention, self-management, advance preparation, self-monitoring, delayed production, self-evaluation, self-reinforcement, repetition, resourcing, directed physical response, translation, grouping, note-taking, deduction, recombination, imagery, auditory representation, key-word, conceptualization, elaboration, transfer, inference, question for clarification.

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Based on the theories and models of Metacognition, review of related studies and after analyzing the various dimensions of Metacognition elaborately, the strategy evolved consists of the following principles of Metacognition.

Planning: Planning is the prerequisite of any activity. The success of any endevour depends upon proper planning. Planning as far as any learning activity is concerned consists of the following aspects. The learners should have self-awareness on these aspects. They are, Goal setting, Time Management, Analysing Strengths and Weaknesses, Analysis of Previous learning, Anticipation, Self Responsibility, Self Determination etc. awareness on these aspects will be very helpful to take up the learning activity successfully.

Focussing attention: Focussing attention or selective listening is the next strategy for achievement (Saravanakumar.AR 2008). 0 'malley & Chamot listed strategies which are the higher order executive skills that may entail planning, monitoring or evlaluating the success of a learning activity.

Information management: In learning the second language students have to adopt a number of Metacognitive skills. They have to process the information for proper understanding.

During processing of the information successful learners adopt a number of techniques. They are Translation, Conceptualization, Combination, Assimilation, and Elaboration. (0, Malley, & Chamot)

Memory: While learning, learners have to remember a number of facts, ideas, incidents, years, concepts etc. New knowledge should be associated with previous knowledge to remember better. So the learner has to employ a number of techniques to remember the new information, retrieve previous knowledge etc. Use of mnemonic strategies helps learners to retrieve the information they need. Successful learners deliberately employ certain mnemonics strategies to remember better.

Monitoring: Self regulation or monitoring one's own learning play an important role in Metacognition. Successful learners employ a number of techniques while learning to check their learning process. They are Self Questioning, Self Talk, Self Management of resources, Strategies selection, Self reporting, Self appreciation etc. Metacognition involves the active monitoring and consequent regulation and orchestration of various processes such as Meta memory .and Meta learning.

Evaluation: After the learning process, learner should evaluate themselves to find out whether they have reached the learning outcomes. It is termed. as Self Evaluation. Self Evaluation helps the learner to check whether the objectives of learning are achieved or not. Some of the techniques are Self Checking, Error Detection, Self Correction, De Bugging, Self Review, Self Questioning, Self Judgement.

METACOGNITIVE STRATEGIES IN LEARNING

Metacognition refers to the training and thinking among learners to think for themselves, that is, to use the knowledge they have, in order to arrive at further knowledge. Their ability to think depends to some extent on inborn intellectual and perhaps temperamental qualities. Some children are by nature more likely to be good thinkers than others, but all children can by wise training he helped to develop their thinking powers fully, and to direct their thinking to worthy ends. The learner should look for relations of likeness, difference and cause among the different sets of ideas.

The learners are expected to develop intellect, character, skill, taste and sociability. Teacher trains them in knowledge, habits, ideals, skills and manners. Teaching is like lighting a fire. There are two main factors in the process of teaching - the learners on the one hand and his world on the other hand. The teacher's function is to bring the two into contact with each other.

Strategies emphasize the cognitive process that makes for understanding. A strategy is a deliberate, planned and conscious acitivity. Skills are procedures that readers need to over learn through repetition, often through drill and practice, which occur in isolation in the task of understanding.

To assist children's thinking process, following strategies can be used:

1. Providing immediate and academically oriented feedback.
2. Providing lots of praise for thoughts and ideas and as well as correct solution~ evaluating actions and specifying a rationale for decisions in order to review the process of reaching a conclusion.
3. Direct ,guidance involves specifying what children must do in a particular situation.
4. Use enquiry based learning in addition to problem based learning.
5. Teach students to ask themselves questions about the prob-

lems/tasks they are working on.

6. Emphasize higher level thinking objectives in regular mathematics classes.

CONCLUSION

Students can enhance their learning by becoming aware of their own thinking as they read, write, and solve problems in school. Teachers can promote this awareness directly by informing students about effective problem-solving strategies and discussing cognitive and motivational characteristics of thinking. Metacognition is important for two reasons. One is that it enables us to use our knowledge and strategies much more efficiently by being selective. Students with high levels of metacognition engage in deeper processing and learn more eventhough they do not allocate more time or effort to learning. A second reason is that metacognition compensates average or low ability. Research shows that when metacognitive awareness is high, students perform faster and more efficiently even when their ability is not higher than that of other students.

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