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ORIGINAL ARTICLE

Metacognitive Orientation : A Theoretical Framework

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Abstract:

Teaching is a process by which the teacher and the students create an interactive environment, in such a way that the students become effective and productive learners. The productive learners can reflect on how they think and learn, set performance goals, select potentially appropriate learning methods and monitor their progress toward these goals. This paper focus on metacognitive orientation helping learners to develop metacognitive perspectives on enhancing students learning and personal responsibility.

KEYWORD:

Interactive Achievement, Learners, Monitor, Perspectives .

INTRODUCTION

Metacognition encompasses self-knowledge of learning strategies and the ability to use this knowledge in regulating the process of learning. Extensive research in the area of metacognition, suggests that effective use of cognitive monitoring skills is determined by level of prior knowledge and aptitude (Saravanakumar.AR & Dr.S.Moahn 2007). Knowing about one's own cognition forms the basis for most metacognitive abilities. These abilities include knowledge about how we perceive, remember, think and act that is, what we know about what we know.

SELF REGULATION

Self-regulation requires a student to be Metacognitively, motivationally and behaviourally active in regulating his own thinking and learning. It involves one's own thinking and learning. It also involves awareness of personal goals and of strengths, weaknesses, and interests, instructional goals, conditions of learning and performance.

The following self-regulatory skills are essential for successful learning.

Self-evaluation
Self-monitoring
Goal setting
Strategic planning
Strategy implementation
Monitoring of the strategy
Strategy outcome monitoring

A student's ability to regulate his own learning demands the ultimate integration of neurodevelopment abilities. Self-regulated learners keep track of their understanding and their progress

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and reward themselves for their successes. They use problem-solving strategies and memory. Techniques appropriately. They learn to think critically about the demands of the task at hand and availability of time, resources etc. In short self-regulated learners are intentional active and reflective. Self-regulation is largely based on a problem-solving approach giving rise to greater individualization of learning. Through self-regulated learning the learning programme can be shaped by perception and response of the individual child. Self-regulated learning is based on the stretch of land that learners will take up total responsibility for their own learning. The learner will ultimately decide on the parameters of his activities.

METACOGNITIVE AWARENESS AND MONITORING

Nelson and Narens (1990) describe monitoring and control as dominance relations between a meta-level system and an object-level system. Monitoring refers to the flow of information from an object-level system to a meta-level system. That is, a meta-level system receives input from an object-level system. By contrast, control refers to the flow of information from the meta-level system to an object-level system. This flow of information entails a meta-level system influencing processes at an object-level system. This two-level model is general in that a person may monitor products of processing that arise during the completion of any cognitive task.

Several theoretical issues about mete cognitive monitoring are highlighted by research on monitoring of text comprehension. A major issue in the metacomprehension literature is to understand why people's monitoring of text comprehension at times appears so poor. In particular, why do people often have difficulties detecting contradictions within a text? Why do they fail to detect that their naive beliefs about a topic are incompatible with scientifically accepted beliefs provided in the text? And why do people appear relatively inaccurate at assessing how well they have comprehended recently read material? This content provide insight into understanding the nature of these aspects of metacomprehension, which include the limitations of metacognitive monitoring, the multidimensional nature of text predictions and the irony of on-line monitoring of comprehension.

This scenario highlights an assumption about metacognitive monitoring that is evident in much of the metacognitive literature and that constrains the general model of monitoring and control proposed by Nelson and Narens (1990). Namely, in the specific case of monitoring comprehension an individual does not have direct access to the underlying activation of the contradictory meaning of an inconsistent proposition that occurs during the construction phase. More generally, the assumption is that the meta-level system does not have direct access to the underlying processes that occur within the object-level system However, an individual does have access to products from object-level processes, such as information retrieved about the long-term representation of a text that is accessible after the integration phase.

METACOGNITIVE KNOWLEDGE

Knowledge may be declarative, procedural, or conditional. Declarative information is factual, and involves knowing the concepts of a given task. Procedural knowledge refers to information about how to apply metacognitive strategies. Conditional knowledge is an awareness of when and why one strategy may be superior to another or more appropriate to use. Teachers who identify and teach these components of tasks are helping students to exert metacognitive control over a process (Saravanakumar.AR 2008).

John Flavell, a developmental psychologist is considered as the father of the concept of Meta cognition. According to him what individuals learn about memory is Meta cognitive knowledge. It refers to personal perspective of one's own learning abilities as well as others'. Meta cognitive knowledge refers to acquired knowledge about cognitive process. Flavell further divides Meta cognitive knowledge into three categories.

1. Knowledge of person Variables,
2. Knowledge of task variables,
3. Knowledge of strategy variables

These would be part of the meta knowledge, which an individual acquires as a result of experience and development. Flavell believes that meta cognitive knowledge includes the recognition and differentiation by an individual that some cognitive tasks require playful and goal directed behaviour whereas others do not.

Person Variables

Knowledge of person variables includes a general understanding of the human cognitive learning system and its limitations, capacities, idiosyncrasies, knowledge of one's own temporary and enduring personal attributes and states as a thinking organism. Awareness of what one has forgotten or tip-of the tongue awareness was found to increase with age. Younger children were found less able than older children to assess or predict their readiness to retrieve from their memory. Recall ability was found to be poor in younger children but to increase with age.

Task Variables

Flavell states that metacognitive knowledge of task variables was understanding the given task, what the task demands or what are the goals, which problem information is relevant, how the task could be most effectively and efficiently managed, which strategies would be most appropriate to use etc.

Strategy Variables

Metacognitive strategies are the tactics used for monitoring one's progress towards goal attainment. Storage of both cognitive and metacognitive strategies is a metacognitive function and part of one's collection of factors of metacognitive knowledge. Informed strategy training which explicitly explains the students why the strategy us needed, how the strategy works and what task-related rewards will be gained for using the strategy.

EXECUTIVE FUNCTIONING

In executive control of behaviour, one's capability of governing and being aware of one's own learning activities. In other words, metacognitive performance involves active monitoring and consequent regulation and orchestration of cognitive processes to achieve cognitive goals.

Dejong (1992) discerned seven kinds of executive control.

I. Orientation - gathering information about learning task.
2. Planning- management of learning behaviour.
3. Monitoring - Keeping an eye on progress of one's own learning process.
4. Testing - checking whether one has acquired information, or reached comprehension. Processes such as paraphrasing, summarizing, drawing conclusions, solving exercises, recalling and comparison of text fragments and asking oneself questions are covered in testing.
5. Repairing - On line decision during learning. Three kinds of decisions can be discerned. (a) - Reorientation, (b) On line planning during learning, (c) Diagnosing and finding the causes of probleins that occur during learning.
6. Evaluating - judging whether proceeded as planned.
7. Reflecting - finding the general in the specific. Thinking about the general things that can be learned from the specific, learning experience for next learning.

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 2008). 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 meta cognitive strategies or meta cognitive regulation (Brown). 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 SKILLS:

Extensive research in the area of metacognition suggested that effective use of cognitive monitoring skills was also determined by level of prior knowledge and aptitude, self-assessment (the ability to assess one's own cognition) and Self-management (the ability to manage one's further cognitive development). Successful adult learners employ a range of metacognitive skills and effective teachers try to develop these skills. Pupils with learning difficulties lack Metacognitive skills (Borkoweki, co-operation. Buchel, Buchel 1983). Therefore executive skills or Metacognitive skills are important for efficient and effective learning because they assist in the performance of cognitive strategies. Metacognitive skills include setting goals, planning a course of action, monitoring the results, reflecting their current understanding etc.. In short they have the ability to self - regulate. Metacognitive skills significantly influence cognitive performance. There are many Metacognitive skills. Some are quite general such as "Work Carefully", others are more specific such as "consider opposing points of view". Metacognitive skills allow learners to make up for deficits in domain knowledge or more quickly through the problem solving process when life presents situations that cannot be solved by learned responses, Metacognitive behavior is brought into play. Metacognitive skills are needed when habitual responses are not successful

MODELS OF METACOGNITION

Researchers have referred to metacognition as "cognitive strategies" (Paris and Winograd, 1990), "knowledge about executive control systems" (Brown, Harper and Hedberg, 1994), "monitoring of cognitive processes" (Flavell, 1976), "resources and self-regulating learning" (Osman and Hannafin, 1992) "evaluating cognitive states such as self appraisal and self management" (Brown, 1996) and metacognitive orientation enhancing student's achievement (Saravanakumar.AR 2006). These are broad terms that are all equally important depending on the characteristics of the learner and their approach to the learning. If we look at learners who are aware of their metacognitive processes, they will be doing the following:

Planning - deciding what their goals are and what;
Strategies - to use to get there; decide what further;
Knowledge or resources they need;
Monitoring – Progress along the way; am I going in the right direction;
Evaluating – when I have arrived; and
Terminating – When the goals have been met (Biggs and Moore)

Metacognition is the ability to select and manage strategies of cognition effectively. Most models of metacognition specify that if a highly specialized and involuted form of cognition that oversees, manages and orchestrates cognitive ability is exercised especially when problem solving, effortful cognitive activity is required.

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 orientation 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 metacognitive orientation 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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