

# METACOGNITIVE LEARNING STRATEGIES FOR STUDENTS WITH LEARNING DISABILITIES

SHEILA R. VAIDYA, Ph.D.

*School of Education,  
Drexel University,  
Philadelphia, Pa. 19104*

This paper discusses the importance of metacognition for students with learning disabilities especially to reach the goal of becoming purposeful, effective and independent learners. A distinction between cognitive and metacognitive strategies is discussed. Within a context of a research base, direct teaching of strategies for students with learning disabilities are discussed with implications for instructional design in the classroom.

## **Definition of Metacognition**

In the psychology literature, metacognition is referred to as one's "inner language" or as "thinking about one's own thinking" or more specifically metacognition refers to an individual's self-knowledge about their cognition and to the ability to be able to influence one's own cognition (Meichenbaum, 1985). Research on metacognition has strong possibilities and opportunities to influence our understanding of learning strategies for students with learning disabilities. A strategy is a systematically thought out approach which enables us to get from one point to another. The goal of a strategy is to teach students how to become purposeful, effective and independent learners. Self-assessment (Miller, 1991) and self-monitoring is thought to facilitate strategic functioning.

Learning is influenced by several factors including inadequate prior knowledge, poor study skills, problems with maintaining sustained attention, cultural or language differences or the presence of a learning disability. Most students who are successful learners have been able to real-

ize by themselves the self-understanding that pertains to knowing what are effective learning strategies for a given learning situation. Students with learning disabilities typically lack this self-knowledge and self-awareness and therefore, they must be taught these strategies directly.

Students with learning disabilities often find learning a difficult and painful process. Learning becomes difficult when there are memory problems, difficulties in following directions, sustaining attention, trouble with the visual or auditory perception of information, or visual-coordination problems resulting in an inability to perform paper and pencil tasks. The presence of a learning difficulty can make learning to read, write and do math especially challenging. Students who have learning disabilities are often overwhelmed, disorganized and frustrated in learning situations.

In the process of instructing learners to improve the learning process, distinctions can be made between cognitive and metacognitive strategies. Cognitive strategies help a person process and manipulate information; examples include taking

notes, asking questions, or filling out a chart. Cognitive strategies tend to be very task specific, implying that certain cognitive strategies are useful only when learning or performing certain tasks. Metacognitive strategies are executive in nature. They are the strategies a student uses when planning, monitoring, and evaluating learning or strategy performance. Hence, they are often referred to as self-regulatory strategies. A person who uses metacognitive strategies must therefore be aware of the need for executing strategies such as planning, monitoring and evaluating; thus being able to imagine and envision the future with reference to performing in a situation. The most effective outcomes are received by learners who combine the metacognitive with the cognitive. Metacognitive processes are presumed to provide the individual with some volitional control over various cognitive routines related to problem solving.

#### **Instructional Strategies for Learners with Learning Disabilities**

There is a significant difference between teaching a child "how" as opposed to "what" to think. The use of metacognitive strategies by a student indicates that the student is aware of learning as a process and that he/she is also aware of learning how to learn methods of how to accomplish learning. Taking the time to plan before writing or taking the time to organize an outline before writing, for example, shows that the student knows and understands what is involved in writing a good composition (Spence, 1990). When these strategies are be integrated into content area learning, the learning outcomes are

successful (Scruggs and Mastropieri, 1993). Unfortunately, few studies have attempted to examine the relationship between cognitive and metacognitive functions. With reference to the process of applying strategy, there is some evidence to indicate that children with learning disabilities are not necessarily strategy deficient, but that the strategies they use are inefficient or inflexible. (Torgesen, 1980).

Failures to use a strategy is often thought of as a deficiency (Torgesen, 1980). The inferred absence of a strategy (i.e., the failure to benefit from training) is often thought of as a "mediational deficiency". These deficiencies are approximately descriptive of what also might be called process deficits (Butler, 1995). In this context the work of Feuerstein provides a strong understanding of how to create mediational strategies that are effective and the importance of competence on the part of the mediator.

#### **Feuerstein's work and metacognition:**

##### **The mediated learning model.**

One of the essential characteristics of Feuerstein's work is that he sees human intelligence and the ability to learn as modifiable and as having a plastic quality that can change process deficits (Waksman, 1986). Feuerstein does not accept a child's limitations as being long-lasting; he advocates going "beyond himself". To address this situation, Feuerstein thus advocates an approach that he refers to as "mediated learning". This implies that it is not enough to provide a child with books and music; to function as a mediator, an adult must help the child to interpret and make sense of the materials, so the child can "go

beyond himself. Feurestein also calls this "instrumental enrichment". The approach is based in the abilities of the mediator and the use of thinking and self-awareness processes as well as metacognition. Cognitive skills have shown a improvement when the approach is applied with students who have learning disabilities (Messerer, et. al. 1984).

#### **Attribution Theory as the theoretical basis/ origin for Metacognition**

Attribution theory makes the assumption that an individual's interpretations of the causes of outcomes (successes and failures) influence future behavior. That is, it is the individual's cognition about the causes for success and failure that affect future efforts and choices. Attribution theorists (Weiner, 1980) categorize people's cognition or beliefs along three dimensions: stability, internality, and intentionality or control. *Stability* refers to the consistency of causes over time. For example, factors such as ability, task difficulty, and personality are considered to be stable causes, whereas effort, mood or luck are seen as unstable. *Internality* refers to factors within the individual, such as ability, effort and mood. External factors include such things as task difficulty and others' behavior. *Intentionality* refers to causes such as personal effort and interest which are under a person's control, in contrast to ability and personality, which are not.

According to attribution theory, if people perceive their successes are the result of their abilities, they will be likely to attempt similar tasks in the future because they will expect to do well and feel good about their performance. If they believe

their successes on a task are due to factors not in their control (such as luck or being given easy work) they will be less likely to persevere. In sum, although our views of ourselves are complex, it is clear that these opinions determine how we behave, how we think, and the emotional responses we experience in difficult situations. Thus, attribution influences learner motivation (Fulk, 1996).

#### **Educational and Conceptual Implications**

1. Direct teaching of cognitive strategies is effective for children than the direct teaching of metacognitive strategies. Torgeson (1980) has suggested that LD children are inactive in their cognitive response to task demands. He proposes that it is not that they lack an ability to use strategies, but that they fail to spontaneously apply appropriate strategies in situations of response uncertainty. Impulsiveness, therefore, may be characteristic of children who exhibit production deficiencies in problem solving. Impulsiveness is a passive strategy that is noted in children, because it reflects inadequate reflection with respect to a situation.

Another aspect of learning that presents difficulties for students who have learning disabilities is why they think they succeed or fail at learning; impacting their self-image as a learner. Due to their history of academic problems, such students may believe that they cannot learn, that school tasks are just too difficult and not worth the effort, or that, if they succeed at a task, it is purely due to luck rather than effort that was put forth. They tend not to understand

the relationship between their effort on a task and the achievement outcomes. Thus, they develop a sense of an external locus of control, attributing success and failure to circumstances beyond their control.

2. The Need to be Strategic learners is critical. Strategies to make it easier for us to learn something; at times, the strategy we use is a mechanism to organize information so that we can understand and learn it more efficiently. At most times, we are taught that these strategies will make our learning more efficient or we learn them when someone models them, or they emerge from us out of our learning needs. Students with learning disabilities may be limited in their ability to create a learning strategy out of their learning needs because they are limited in their metacognitive awareness of their learning needs. They need repeated instruction to understand that they must use strategies and they need modeling before it becomes natural for them to use the strategy and to transfer a strategy learned from one setting to another. More important, they need work in developing metacognitive awareness and understanding so that they can come up with successful strategies on their own.
3. A combination of constructive and instructive strategies for LD students and all students is critical, since all students including LD need structure and direction. as well as the consistency in activating appropriate strategies.
4. Classroom instruction and curriculum design should incorporate instructional design thinking. That is, lesson

planning should consider individual learners needs, needs of students with disabilities and the direct teaching of metacognitive strategies. It is important that curriculum is designed to build metacognitive strategies for learners.

5. Metacognitive understanding can help LD students address social skill deficits by addressing their self-image as a learner. An aspect of learning that presents difficulties for students who have learning disabilities is why they think they succeed or fail at learning; impacting their self-image. Due to their history of academic problems, students may believe that they cannot learn, that school tasks are just too difficult and not worth the effort, or that, if they succeed at a task, it is due to luck rather than effort that was put forth. They tend not to understand the relationship between their effort on a task and the achievement outcomes. Thus, they develop a sense of an external locus of control, attributing success and failure to circumstances beyond their control. Metacognitive understanding can enhance self-understanding, directing attributions to the self(internal) as a way of improving one's self-image and control over environmental circumstances.

#### References

- Butler, D. (1995) Promoting Strategic Learning by Postsecondary Students with Learning Disabilities. *Journal of Learning Disabilities*; 28, (3) 170-190.
- Fulk, B.M. (1996) Reflections on the Effects of Combined Strategy and Attribution Training on LD Adolescents' Spelling Performance. *Exceptionality*; 6 (1) 59-63.
- Kolligian, J. & Sternberg, R.J. (1986) Intelligence, information processing, and specific learning  
(Continued on page 81)

Hunziker, C.M. (1987). *Persistence and graduation of UC Davis undergraduates admitted by special action: 1975-1985* (Report No. HE 020 456). Davis, CA: University of California, Davis, Office of Student Affairs Research and Information. (ERIC Document Reproduction Service No. ED 282 469)

Tinto, V. (1987). *Leaving college*. Chicago: The University of Chicago Press.

University and Community College System of Nevada, *Board of Regents Code*, Title IV, Chapter 16, p. 12.

(Continued from page 182)

Empowerment can be a successful means of running a school when the school and the community have formed a mutual commitment to education. Instead of the school being a separate entity within the community, both work together in systematic symbiosis, each receiving input, processes, outputs, and feedback from one another. The end means of empowerment is a more successful educational experience for students.

#### References

Martin, M. M. (1991-92). Site-based management of schools. [Computer program]. Everett, Pa: <http://www.everett.k12.pa.us/schools/management.htm>.

North Central Regional Educational Laboratory. (1995). Common pitfalls and useful lessons. [Computer program]. URL: <http://www.ncre/sdra/area/issue/s/envrmt/gp/93-1comm.htm>.

Robles, J. J. (1997 October 16). Teamwork called key to schools. *The Detroit Free Press*, pp. 1B.

(Continued from page 185)

Since these lessons can be geared to not only subject specific areas, but to student abilities as well, the possibilities are endless. Such lessons establish consistent patterns for future achievement as students come to see visual proof that they can indeed succeed.

When all is said and done though, the greatest benefit of such lessons lies in the

fact that they once again bring back the feelings of joy and excitement to the classroom. As a result of these lessons, students will remember how much fun learning can truly be once again. In fact, teachers themselves will recapture this same sense of joy as they design unique and challenging lessons that they would be proud to display on their very own refrigerators.

(Continued from page 189)

disabilities: A triarchic synthesis. *Journal of Learning Disabilities*, 20, 8-17.

Miller, M. (1991) Self-Assessment as a Specific Strategy for Teaching the Gifted Learning Disabled. *Journal for the Education of the Gifted*; 14, (2), 178-88.

Meichenbaum, D. (1985). Teaching Thinking: A cognitive behavioral perspective. In J.W. Segal, S.F. Chipman, & R. Glaser (Eds.) Hillsdale, NJ: Erlbaum.

Messerer, J. (1984) Feurstein's Instrumental Enrichment: A New Approach for Activating

Intellectual Potential in Learning Disabled Youth. *Journal of Learning Disabilities*. 17 (6) 322-325.

Scruggs, T.E; Mastropieri, M.A. (1993) Special Education for the Twenty-First Century: Integrating Learning Strategies and Thinking Skills. *Journal of Learning Disabilities*; 26 (6) 392-398.

Tollison, P., Palmer, D.J., & Stowe, M.L. (1987). Mother's expectations, interactions, and achievement attributions for their learning disabled or normally achieving sons. *Journal of Special Education*, 2 (3), 83-93.