An Instructional Model for Teaching Learning Strategies

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Over the past decade, remedial and special educators have increasingly become aware of the need to identify and use instructional techniques and curricula that promote the independence and success of their students in the academic and social realms. Many educators have begun teaching their students strategies as a primary means for achieving this goal. A strategy is an individual's approach to a task; it includes how the person thinks and acts when planning, executing, and evaluating performance on a task and its outcomes (Deshler & Lenz, in press). Many types of strategies are required for an individual to effectively and efficiently complete a task. The use of specific learning strategies helps an individual approach a learning task. For example, one might incorporate the use of the learning strategies embedded in the strategy intervention called Multipass (Schumaker, Deshler, Alley, & Denton, 1982) in his approach to learning the important information in a textbook chapter. Likewise, the strategies embedded in the Error Monitoring Strategy (Schumaker, Nolan, & Deshler, 1985) intervention could be adopted to help an individual find and correct errors in a written product. Learning strategies like these have been designed to enable students to effectively and efficiently meet the academic demands that they encounter in their school environments (Deshler & Schumaker, 1988; Putnam, 1988). Numerous studies have demonstrated that learning-disabled and other low-achieving students are able to master various learning strategies and to independently apply them to meet the demands of elementary, secondary, and post-secondary settings (e.g., Deshler & Schumaker, 1986; Harris & Graham, 1985; Palincsar & Brown, 1984; Pressley, 1986; Wong & Jones, 1982).

Although several approaches to teaching learning strategies have been described and many appear promising, exactly what constitutes a set of "best practices" for facilitating acquisition and generalization of strategies by students at various age and performance levels has remained unclear. To address this issue, researchers at the University of Kansas Institute for Research in Learning Disabilities (KU-IRLD) have spent the past twelve years focusing on the specification of a set of best practices for teaching strategies to adolescents who are not succeeding in school settings. This research has been conducted primarily with adolescents with learning disabilities and other mildly handicapped populations, and the major goal associated with the research has been to teach strategies that these students can successfully apply to classroom assignments in secondary mainstream settings. That is, instead of focusing on the teaching of simple strategies that can be applied to laboratory tasks, KU-IRLD research has focused on the teaching of "strategy systems" for approaching the complex learning tasks encountered in mainstream settings. Each strategy system is a collection of simple strategies that have been integrated into one instructional routine that can be used by a student to effectively meet a curriculum demand (Deshler & Lenz, in press). One example of a strategy system is the FIRST-Letter Mnemonic Strategy (Nagel, Schumaker, & Deshler, 1986) which includes strategies for creating lists of information and memorizing those lists in preparation for a test. Naturally, the notion of what constitutes effective learning strategy instruction has evolved as more and more of these strategies have been created, as additional research has been conducted, and as more than 25,000 teachers have taught these learning strategies to students and provided feedback about the process.

The purpose of this article is to review how researchers associated with the KU-IRLD currently view effective learning strategy instruction. This will be done by first discussing two important domains that can have an affect on the ultimate success or failure of strategy training: a student's knowledge of critical skills and information related to strategy use and the student's motivation to learn and use the strategy. Secondly, a review of a set of general instructional principles that have been found to be important in teaching learning strategies to students will be provided. Finally, a *working* model of the instructional methodology that has emerged and which reflects a series of instructional stages will be presented. The term "working model" is appropriate because of the continuing evolution of ideas regarding the instructional process related to learning strategies. An earlier version of this model first

appeared in 1981 (Deshler, Alley, Warner, & Schumaker). Although the instructional procedures described in this earlier work have been found to be effective for many students, much has been learned about the technology involved in teaching learning strategies that can potentially increase the likelihood of strategy acquisition and generalization. The model presented in this article represents the evolution of the original model to this point in time and will be used as a framework upon which future KU-IRLD research regarding methodology for teaching learning strategies will be based.

Critical Factors Affecting Strategic Performance

In order for training in the use of learning strategies to have a significant impact on student success, the instruction must be intensive and extensive (Pressley, Goodchild, Fleet, Zajchowski, & Evans, 1987; Slavin, in press). Of the many factors which may affect the ultimate success or failure of strategy training, two important domains are: (a) students' knowledge of critical skills and information that are potentially related to a strategy's use, and (b) students' motivation to learn and use the strategy. Figure 1 provides a summary of what a number of professionals (e.g., Pressley, Snyder, & Cariglia-Bull , in press; Swanson, 1989; Wong, 1985) view as the essential components of these two domains.

Insert Figure 1 about here

With regard to these two domains, this figure summarizes the critical types of knowledge and skills associated with learning and using a new strategy. In addition, it highlights some of the teaching behaviors that characterize the instructional practices emphasized by less effective strategy teachers and more effective strategy teachers.

The Knowledge Domain

Successful learning and performance is contingent on the type and level of knowledge possessed by a student across four areas. These areas include: (a) *process knowledge* related to the essential cognitive and metacognitive strategies required for problem solving, (b) *semantic knowledge* related to what the student already knows and can automatically access for use in problem-solving, (c) *procedural knowledge* related to how skills and strategies are organized to promote successful task completion, and (d) *conditional knowledge* related to judging when and how strategies should be applied. The nature of each of these types of knowledge, as applied to instruction in learning strategies, will be discussed in this section.

Process knowledge. To effectively employ a learning strategy, students must possess essential *process knowledge.* Process knowledge includes knowing how to perform specific cognitive strategies (e.g., summarizing, question generating, predicting, monitoring to confirm) that might be required when performing a specific step of the learning strategy. For example, in the reading comprehension strategy called the Paraphrasing Strategy (Schumaker, Deshler, & Denton, 1984), illustrated in Figure 2, the second step of the strategy, "Ask yourself what are the main ideas and details in this paragraph," cues the student to use a self-questioning cognitive strategy after a paragraph has been read in order to identify the main ideas and details. Process knowledge also involves knowing how to use the metacognitive self-regulation processes associated with effective application of these cognitive strategies when performing a specific step of a learning strategy.

Insert Figure 2 about here

For example, metacognition comes into play while applying self-questioning (a cognitive strategy) within the second step of the Paraphrasing Strategy. Students may check the first sentence of the paragraph, generate a hypothesis about what they believe is the main idea, and then skim the rest of the paragraph to confirm their hypothesis. However, as new information from the paragraph is gained, students, realizing that what they thought was the main idea is not, modify the hypothesis to conform with what has been learned. This process of monitoring the accuracy of the hypothesis, and modifying it as necessary, illustrates metacognition in action. Thus, a student who possesses this type of knowledge has a repertoire of cognitive and metacognitive processes and knows how and when to appropriately apply them.

Unfortunately, many teachers are not taught to think about how their students process information, and they are often unaware of their own mental processes (Pressley, et al., 1987). Thus, when attempting to teach a new strategy, less effective teachers often fail to adequately model the critical cognitive and metacognitive processes involved when performing a specific step of a learning strategy. Instead, they tend to model self-instruction at the most rudimentary level. For example, the teacher might say, "Let's see, the next step of the RAP strategy is 'A' -- Ask myself what are the main ideas and details in this paragraph" and then jump to naming a main idea ("Let's see, one main idea is that you should travel light when backpacking."). Here, the teacher modeled self-cueing of the next step of the strategy, but failed to model any of the cognitive and metacognitive processes that were involved when determining the main idea. An effective strategy teacher would perform aloud all of the processes involved in asking oneself questions, reviewing the topic sentence, forming a hypothesis, checking the remainder of the paragraph to confirm or reject the hypothesis, and recycling the processes when necessary, as well as stating the outcome of the processes (i.e., naming the main idea). In summary, to be effective strategy teachers, covert thinking processes should be overtly modeled and mental "leaps" should be avoided.

Semantic knowledge. In addition to knowing how to perform cognitive and metacognitive strategies, a student must also possess *semantic knowledge* in order to initially master a new learning strategy and to subsequently employ the strategy to meet the demands of mainstream environments. One aspect of semantic knowledge concerns students' mastery of prerequisite skills necessary to perform the strategy (e.g., prior to teaching students an error monitoring strategy to use in correcting mechanical errors in their writing, it is necessary to insure they have knowledge of key capitalization and punctuation rules). One of the critical features of an effective learning strategy is that it enables students to strategically apply known skills or procedures. As a result, students must have the necessary skills in their repertoires before they can learn how to strategically apply them.

Unfortunately, when teaching a new strategy, less effective teachers often attempt to teach these prerequisite skills and the strategy simultaneously. Other less effective strategy teachers fail to even identify the required prerequisite skills and thus they ignore the teaching of them entirely during the instructional process. Attempting to teach a strategy at the same time as teaching the prerequisite skills or ignoring these skills altogether often results in frustrated students and discouraged teachers. In summary, for strategy instruction to be efficient, time must be taken to ensure that students have mastered these skills before strategy instruction begins.

A second aspect of semantic knowledge concerns the degree of acquired knowledge (i.e., content-area information) students should possess before attempting to apply a new learning strategy. For example, application of the Paraphrasing Strategy for enhancing reading comprehension is extremely difficult when the material the student is reading addresses a topic about which the student has little semantic knowledge; a strategy for writing well-organized paragraphs is of little use when attempting to write on a topic about which the student knows very little; a strategy for identifying words when reading is of little use when the word to be identified is not in the student's listening vocabulary.

The implications associated with such problems are three-fold. First, teachers must ensure that instruction is continuously provided that builds the student's background knowledge in the content areas in which strategies will be employed so that students can benefit from the

application of strategies. Furthermore, instruction in the content areas must facilitate students' attaching new information they are taught to the information they already possess. Apparently, many teachers presume that students will automatically make these associations, but many students do not (Lenz, Alley, & Schumaker, 1987). Second, students should be expected to learn content and meet the demands of content learning situations in order to practice and perfect strategy applications. Removing students from learning situations or reducing content learning demands inhibit the potential for both strategy and content acquisition (Ellis & Lenz, in press). Third, support-class teachers and content-area teachers must define their roles and responsibilities concerning responsibility for content and strategy acquisition. The responsibilities associated with employing specific procedures for promoting strategy acquisition and generalization, as described in this paper, as well as the responsibilities associated with strategically enhancing the delivery of content, should be discussed and assumed by the appropriate personnel (Deshler & Schumaker, 1988; Ellis & Lenz, in press; Lenz & Bulgren, in press; Lenz, Bulgren, & Hudson, in press; Schumaker, Deshler, & McKnight, in press). By addressing these areas, students will more likely retain more information and subsequently be able to independently learn more content when using learning strategies. However, if these areas are not addressed, the net result will be that students will retain less of the information, which in turn will limit the efficacy of the strategy. In other words, students will know less, and, thus, will be less able to apply the strategies they know.

Procedural knowledge. Having process knowledge and semantic knowledge is not sufficient to enable a student to successfully perform a strategy. Students must also possess *procedural knowledge* which concerns what students know about the specific procedures, or routines, to be used when performing a strategy. In other words, procedural knowledge is related to how familiar students are with the specific steps of a given strategy, how they are sequenced, and why each step is essential to completing the learning task. Procedural knowledge also includes the skills involved when employing self-instruction to use of the strategy steps when a barrier to task completion is encountered. During such instances, students' procedural knowledge allows them to regulate their use of the strategy steps in solving the problem before them.

Less effective strategy teachers tend to limit the information they communicate about a strategy by only rudimentarily addressing procedural knowledge at the expense of facilitating comprehension of the procedures and communicating information about the thinking processes required. Often, the focus is on rote memorization of the strategy steps, rather than on promoting the student's understanding of what each step entails and why the steps are important to the overall problem-solving process. To facilitate acquisition of procedural knowledge, more effective teachers prompt students to verbally elaborate on the strategic process both on a global level (e.g., they ask students to describe what the overall procedure is designed to do and why) and on an atomistic level (e.g., they ask students to specify the overt and covert behaviors that each step in the procedure is designed to cue students to use and why these are important to the overall problem-solving procedure). Students should be able to describe, in their own words, what they are generally doing when performing the strategy and what they hope to accomplish as a result of using it. In addition, they should be able to describe each step of the strategy, what it is designed to do, and why it is important to the problem-solving routine.

Conditional knowledge. Many students will demonstrate high levels of competency when applying a new learning strategy while interacting with training materials, but they rarely, if ever, use it to meet the learning demands outside of the remedial setting. In short, they may have gained process, semantic, and procedural knowledge, but they have not gained enough *conditional knowledge* to make the strategy a functional problem-solving tool in the "real world." Conditional knowledge is the information students use to recognize a match or mismatch between the critical features of a given problem and the capability of a specific strategy to solve the problem. For example, they may not recognize that the critical features of a task related to writing a current-event report for a social studies class (i.e., explaining one's reaction to a news item) match a strategy for point-of-view writing (Ellis, Carpenter, Courtney, & Church, in press). Thus, learning a new strategy involves learning the conditions under which the

strategy should be used. Students must learn to recognize the naturally occurring cues in the environment that signal opportunities to use the new strategy.

Students must also be able to adapt a learned strategy to match different but similar demands. For example, when the teacher directs students to write a book report using their own words to describe the book, they should be able to adapt the Paraphrasing Strategy (a reading comprehension strategy) to translate information into their own words for the book report. Unfortunately, although many teachers value strategy instruction enough to devote some instructional time to it, they often sacrifice instruction related to promoting conditional knowledge so that they can proceed to instruction in other strategies, skills, or content-area information. Sadly, the net result is often a total waste of time because students never learn how to generalize the strategies they have learned, and thus the strategies are rarely used in the situations for which they had been taught and they are not adapted for use in other situations.

To expand conditional knowledge so that generalization is more likely to occur, a number of instructional initiatives on the part of the teacher appear desirable. These include: (a) conducting guided and independent practice accompanied by individual feedback on a wide variety of stimulus materials with varying levels of difficulty, (b) providing opportunities for students to discuss and elaborate on the use of and adaptation of the strategy, (c) facilitating goal setting related to generalization, (d) establishing the expectation of generalization, and (e) structuring specific and varied transfer activities.

Summary. In summary, four types of knowledge must be addressed when teaching learning strategies to students if they are to be expected to effectively learn and apply the new strategies to meet the demands of mainstream settings. *Process knowledge* enables students to perform the necessary cognitive and metacognitive strategies included in a learning strategy; *semantic knowledge* enables them to perform other necessary skills involved in the strategy and provides them with a knowledge base upon which strategy use can build; *procedural knowledge* enables them to put together the cognitive and metacognitive strategies and other non-strategic skills into a fluid sequence; and *conditional knowledge* enables them to adapt the learning strategy where necessary and to apply it in appropriate situations outside of the remedial setting.

The Motivational Domain

The second domain of critical factors affecting strategic performance concerns students' motivation to learn and use a strategy. Student motivation can play as critical a role in the learning process as varying levels and types of knowledge. Typically, those students targeted for learning strategy instruction are also those students who have been described as unmotivated and inactive participants in the educational setting (Deshler, Schumaker , & Lenz, 1984). Unfortunately, many educators identify fixed personality traits such as temperament as the cause of motivational problems and thereby preclude intervention in the motivational domain. A more profitable approach to the motivational problem considers students' belief systems and self-motivation techniques as important targets of the instructional program.

Belief systems. What students believe about themselves, the problems or tasks they encounter, the underlying principles to which they attribute the occurrence of certain actions or outcomes, and about the effectiveness of the problems-solving strategies that have been designed to address these problems can have a significant impact on their receptivity to learn and subsequently employ new strategies. For example, some students who have experienced a history of failure and who view themselves as incapable are skeptical of interventions designed to enable them to become capable. Many of these students have a tendency to rely on others for direction, goal-setting, and reinforcement. Students' beliefs about the relative merits of performing academic tasks naturally impact the extent to which they are willing to exert energies to undertake the tasks. For example, if they do not value the content they are learning in science class (i.e., do not believe the knowledge will be helpful to them), they will be less likely to complete science assignments and less likely to apply strategies to those assignments. Likewise, students' beliefs in their old learning habits will have an impact on their willingness

to learn new ways of approaching academic tasks. Many students seem to be thoroughly committed to using less efficient or effective strategies when learning or performing and are thus less willing to learn or use new strategies.

Some teachers appear to be intimidated by what they perceive to be students' beliefs. They perceive the student as resistant to learning, in general, and to strategy instruction, in specific, and consequently teach new learning strategies in a rudimentary or non-demanding fashion so that their rapport with students is not jeopardized. This instruction is less than effective because students do not receive the corrective feedback necessary to master the new strategy, and they often do not receive sufficient opportunities to practice using the strategy.

Effective strategy teachers use a variety of techniques to help their students alter their belief systems with regard to academic performance and strategy usage. First, they engineer instructional arrangements to promote and reinforce independence on the part of students. The more that students find that they are able to independently make choices and proceed through the learning process, the more likely they will adopt beliefs that are congruent with the notion that they can be effective learners. Second, they communicate high expectations for their students through their words and actions. Students are more likely to believe that they can achieve challenging goals if others in their environment believe that they can achieve them as well. Third, they help students identify and analyze beliefs that underlie their behavior as ineffective learners. The Control Model, developed by Bennett (1987), provides a framework for teachers to use in helping students identify the underlying beliefs they have adopted to meet certain needs (the need to feel important [to have self esteem], the need for variety, the need to love and be loved, the need for survival, etc.) and that ultimately govern much of their behavior. Through the discussion of this model, teachers can, if necessary, help students understand how their beliefs might be functioning to undermine their success. Fourth, they help students discard unproductive beliefs through a variety of means. They carefully orchestrate the types of assignments given to individual students. Thus, each assignment is carefully planned such that the student is afforded an opportunity to connect success with the use of the strategy. Through a series of successes, students can begin to discard the belief that they cannot be successful and to adopt the belief that they can be successful when they use the strategy. Effective strategy teachers also tune into their students' verbal and physical behaviors so that they can identify those students whose belief systems are incompatible with successful strategy usage. Once these students are identified, effective teachers spend considerable time prompting the students' verbal expression of negative beliefs, discussing the impact of these beliefs on performance, modeling positive self-talk, prompting positive self-talk, and providing feedback about self-talk. They also permeate their strategy instruction with rationales and statements that connect use of the strategy with benefits the students can achieve for themselves. When success has been realized, these teachers spend time with the students comparing current performances with previous performances and celebrating the progress students have made. A major aspect of this comparison process involves helping students discover and articulate how their beliefs about themselves, their environment, and the strategies they have recently acquired have changed over time.

In short, through strategy instruction, teachers help students see their surroundings and themselves within those surroundings in a significantly different way. Seeing things (or oneself) in a "different way" has been referred to as a "paradigm shift". Kuhn (1970) referred to the power of paradigm shifts in science that have enabled researchers to break with tradition and their old ways of thinking, to enable them to make new discoveries and breakthroughs as a result of their new or altered paradigm. Similarly, Covey (1989) has argued that the effectiveness and productivity of individuals can be greatly enhanced if they shift their paradigm concerning their beliefs about their potential for learning and their abilities to successfully cope with setting demands given their mastery of an array of learning and social strategies.

Self-motivation techniques. To independently employ learning strategies to meet the demands of mainstream classes, students must be sufficiently motivated over a sustained period of time. Within a learning strategies context, McCombs (1984) has addressed the notion

of sustained motivation through a concept called "continuing intrinsic motivation to learn." This concept has been defined as "a dynamic, internally mediated set of metacognitive, cognitive and effective processes that can influence a student's tendency to approach, engage in, expend effort in, and persist in learning tasks in a continuing, self-directed basis." (p. 200) This definition implies that students must know themselves as learners and realize that they are responsible for their own learning. McCombs further argues that the overriding purpose of self-motivation training is to promote in students a perception of self-efficacy and personal control. These perceptions underlie the ability of students to take positive self-control and change negative attitudes and orientations toward learning.

Capable learners appear to employ a number of motivation strategies, including the use of self-coping and affirmation statements, establishing their own goals, and providing themselves with reinforcement. Ultimately, students mastering use of a new strategy must also master use of self-motivation strategies. Regrettably, many teachers take on the responsibility for motivating students rather than teaching students to motivate themselves. For example, some teachers employ only extrinsic motivational systems to motivate students. Such systems focus on the teacher establishing goals for students, awarding the students tokens or points for completed work, exchanging these tokens for extrinsic reinforcers, and delivering exaggerated praise in conjunction with appropriate performance. Although use of extrinsic reinforcement often produces immediate short-term benefits, some authors have suggested that its use in isolation from other motivational tools creates dependency in students and tends to reinforce external locus-of-control beliefs rather than facilitate independence (e.g., Ellis, 1986; Ellis, Lenz, & Sabornie, 1987; Litch & Kistner, 1986; Wittrock, 1986).

Although effective strategy teachers might make use of some form of extrinsic motivational systems (e.g., points, grades, parties, trips) to encourage learning, they also teach their students self-motivational techniques in conjunction with teaching them learning strategies. For example, they teach their students how to set annual goals for learning and how to present these goals at their IEP conferences in such a way that the goals are included in their formal educational plans (Van Reusen, Boss, Deshler, & Schumaker, 1987; Van Reusen, Deshler, & Schumaker, in press). They teach their students to set personal goals, to make positive affirmation and self-coping statements to motivate themselves as they work through a task, to evaluate their own performances, to use self-reinforcement and self-correction procedures, and to monitor progress toward their goals (Seabaugh & Schumaker, 1981). Thus, the instructional process is driven by student goals, not teacher goals. In addition, during the process of instruction on a given strategy and across strategies, they fade their mediation of the instructional process and expect the student to take more and more responsibility for learning. Such a transfer of responsibility prepares students to face the demands of mainstream educational environments where self-motivation is required.

Summary. To summarize, motivational factors play a critical role in promoting strategic learning and performance. Teachers need to be aware of these factors and need to actively address them throughout the instructional process if students are to be expected to learn to use strategies effectively and efficiently.

Important Instructional Principles

Pressley (1986) has argued that good strategies are "composed of the sufficient and necessary processes for accomplishing their intended goal, consuming as few intellectual processes as necessary to do so" (p. 140). Similarly, good strategy instruction incorporates procedures that are based on sound instructional principles and are sufficiently powerful to enable students to acquire a new strategy as quickly and as efficiently as possible. Some basic principles that have been found to facilitate this type of strategy instruction are reviewed below.

Teach Prerequisite Skills Before Strategy Instruction Begins

First, prior to beginning formal learning strategy instruction, students should be taught the necessary prerequisite skills. Since most learning strategies are designed to enable students to use skills in a problem-solving context, those skills that are required for successful strategy use should be mastered *before* instruction in the actual strategy begins. To facilitate prerequisite skill instruction, students' skills must be assessed to determine whether they have mastered the skills necessary for successful application of a specific learning strategy. Some skills may only require a brief review, while others may require more intensive instruction. As a general rule, students should have mastered prerequisite skills well enough to fluently apply them. For example, instruction in the Paraphrasing Strategy (in which students are expected to read and paraphrase the content of a paragraph) may need to be preceded by instruction in a related prerequisite skill area such as paraphrasing smaller information chunks (e.g., one sentence). Similarly, if students are to be taught the Sentence Writing Strategy (Schumaker & Sheldon, 1985), instruction in the strategy is enhanced if students first learn how to identify subjects, verbs, and prepositions.

There are two main benefits of teaching the necessary prerequisite skills prior to strategy instruction. The first is that teachers will be working only with those students who are prepared to benefit from instruction in the given strategy; hence, the necessary steps have already been taken to prevent students from failing. Additionally, the instruction in the strategy will be more efficient because using instructional time to cover prerequisite skills in the middle of strategy instruction will not be necessary. This will allow students to travel a relatively straight and uninterrupted path between the initial introduction and description of the strategy and the actual application of the strategy to classroom assignments. Such a straight path can enhance the motivation of students to learn additional strategies.

Teach Regularly and Intensively

The second principle associated with strategy instruction is that learning strategies should be taught with intensity and on a regular basis. In order for students with learning disabilities to successfully master complex learning strategies to a point of fluency, these strategies need to be taught on a consistent basis. Ideally, this means *daily* exposure to strategies instruction with ample practice opportunities programmed into an instructional period. Thus, activities that prevent or interrupt daily instruction (e.g., assemblies, standardized tests, trips to the counselor's office) must be kept to a minimum. Additionally, regular attendance must be required and encouraged.

A key to ensuring intensive instruction is for both teachers and students to set daily, weekly, and semester goals related to strategy acquisition and generalization. Students should set semester goals that specify the strategies they want to learn. Daily and weekly goals set by students should specify the skills they want to acquire in the process of mastering the new learning strategy. During goal setting, students should consider two factors as they work on setting a goal: a "quantity factor" that specifies how much work will be accomplished during a given period of time (e.g., "Today I will complete five word problems in math using the problem-solving strategy I am learning.") and a "quality factor" that specifies what kinds of behaviors or attitudes a student will try to incorporate during the completion of the task (e.g., "As I attack each problem, I will tell myself the steps of the strategy and remind myself that I can be successful in math when I use the strategy"). Student goals should specify target dates for completing particular instructional components. These goals should be referred to regularly, and performance should be adjusted accordingly in order to meet them. In the absence of ambitious goals for strategy acquisition and generalization, there is often a tendency to prolong the time spent mastering a given strategy. Given the many deficits exhibited by most low-achieving students and students with learning disabilities, the limited instructional time

available must be optimally used, and every effort must be made to prevent students from getting "bogged down" in learning a given strategy.

Teachers should likewise set goals regarding how much to accomplish with each student within a specified period of time. Without clearly defined goals, it is easy to fall a little behind schedule each week, resulting in significant slippage by the end of the semester. Well-defined and ambitious goals tend to increase the intensity of instruction as well as the overall progress of students. By openly sharing their goals with their students, teachers can effectively model for students how to set goals and express the personal value they have found in doing so on a regular basis.

Emphasize Personal Effort

A third principle upon which learning strategy instruction is founded relates to the role that personal effort plays in the learning process. Students need to understand that successful problem solving, in the simplest terms, is related to choosing a strategy that can effectively address the demand of the setting and then trying as hard as possible to use the strategy in the correct way. Teachers need to remind students on a regular basis that academic success results when students use significant personal effort in applying an appropriate learning strategy to a problem they are facing. In short, they need to teach their students that the key elements in the formula for successful problem solving in an academic setting are the following:

Appropriately Chosen Learning Strategy + Personal Effort = Successful Problem Solving

Frequent reference to this formula in discussing progress and providing feedback to students can enhance students' understanding that personal effort must be exerted to ensure success. The use of this formula over a sustained period of time can increase students' understanding of the learning process.

Require Mastery

Fourth, an important principle underlying learning strategy instruction has been to require student mastery of a learning strategy. Research has shown that students are more likely to generalize a given learning strategy (the major instructional goal) when they can proficiently perform the strategy at the specified mastery levels (Schmidt, Deshler, Schumaker, & Alley 1989). Specifically, two dimensions constitute mastery performance: *correct performance* of a given strategy and *fluent use* of the strategy. Typically, the early phases of strategy instruction focus on students acquiring and performing the correct strategy routines. After they have learned the routines in the correct order, the instructional emphasis must shift to increasing the speed and fluidity with which students use the strategy. The strategy must be integrated in their repertoires at the automatic level (Pressley, Johnson, & Symons, 1987). Older students are often required to acquire, store, or express large amounts of information quickly. If a learning strategy is to serve these students well, they must feel that they are more efficient at tackling a task or assignment with the strategy than without it.

Nevertheless, establishing a mastery criterion that is appropriate for all students is very difficult. Although a tenth-grade student who is reading at the fourth-grade level must first demonstrate mastery of a strategy on fourth-grade materials, the instructional goal is for her to perform at a mastery level on tenth-grade materials. Unfortunately, the instructional time that must be expended to achieve the goal of mastery on tenth-grade materials may not justify the trade-offs that must be made with regard to other instructional activities. For some students, extending the time period over which mastery is achieved might be necessary. For example, if a student is having difficulty mastering the verbal expression of the different routines of a strategy, proceeding to a subsequent instructional stage and allowing the student to use a cue card when practicing with the strategy rather than relying on his memory might be necessary. Such a process may not only enable mastery of the strategy more quickly and reduce student frustration, it may also afford the student with multiple opportunities for exposure to

the steps of the strategy in other contexts and circumstances, thus helping to compensate for what was not mastered at an earlier instructional stage.

Integrate Instruction

A fifth principle associated with strategy instruction is the integration of effective instructional techniques throughout the instructional process. The instructional methodology discussed in the next section of this paper is presented as a set of instructional stages that, on the surface, appear to be linear in nature. While the stages are arranged in a logical order, beginning with a pretest of the student's skills and ending with specific generalization activities, strategy instruction appears most effective when several of the instructional methods are integrated throughout the entire series. For example, the generalization activities appear to be most effective if generalization is forecasted and emphasized in all the instructional stages. That is, even as early as the Pretest Stage of the instructional methodology, students' attention can be focused on generalization by emphasizing how they will be able to use the particular strategy in a broad array of settings and situations once they have mastered it. (Ellis, Lenz, & Sabornie, 1987a, 1987b)

Similarly, teachers can continually identify situations where an additional demonstration of the strategy or a substep of a strategy would be advantageous for students. For example, modeling might be helpful when giving feedback to the student on his performance of the strategy to show the student what to do on his next practice attempt. Teachers also can effectively give students multiple opportunities to verbalize the steps of the strategy and the reasons and for each step or substep of the strategy by regularly asking them to name and explain certain aspects of the strategy that they are learning. This can even be done at times that are typically considered to be "noninstructional" times. For example, when students are being dismissed from class, the teacher can require them to "earn their way out of the room" by repeating a certain step of a strategy, by specifying why a particular step is useful, or by giving a situation where the strategy can be used. Consistently expecting students to perform in this fashion can do much to help them achieve mastery. In short, strategy teachers need to be sensitive to particular students who may need repeated exposure to an instructional technique (e.g., another model) or to those whose learning can be enhanced by recycling through a given stage once again.

Emphasize Covert Processing

The sixth instructional principle upon which strategy instruction is based relates to an emphasis on covert processing. Throughout the instructional process, teachers need to deliberately discuss and demonstrate the covert processes involved in performing the strategy. Application of a learning strategy to meet a specific academic task demand often involves the use of covert processes (e.g., cognitive strategies such as visual imagery, prioritizing, hypothesis generating, relating new information to prior knowledge, or paraphrasing; and metacognitive strategies such as problem analysis, decision making, goal setting, task analysis, and self-monitoring). Thus, instruction in the use of a learning strategy should address the covert processes involved in applying the learning strategy. For example, when teaching a learning strategy which contains a step designed to cue the student to paraphrase the main idea of a paragraph, an effective teacher will *explain and demonstrate* the cognitive processes one might use to find and state the main idea. The teacher will also coach students to perform these cognitive processes effectively and efficiently. Roehler and Duffy (1984) have called instruction that emphasizes covert processing "direct explanation" (p.265). In short, they argue that effective teachers focus not only on the mechanical aspects of learning and performing, but also on directly teaching students to understand and use the covert processes involved in the task. A less effective teacher, on the other hand, might simply instruct (with *no* explanation or demonstration) the student to perform the covert behavior and then provide

feedback with regard to whether the desired outcome was attained (e.g., whether students generated the correct main idea).

Emphasize Generalization in the Broadest Sense

A final principle on which strategy instruction should be based relates to the emphasis of generalization in the broadest sense. Over time, the focus of instruction should shift from teaching students to use a task-specific learning strategy to meet the demands associated with a specific problem domain to a focus on how strategies can be used to address similar problems in other domains. Although a task-specific learning strategy is typically designed to target a problem that might be encountered in a specific academic domain (e.g., studying for a test), instruction in that strategy must impact the student beyond the scope of the original problem domain. In other words, students should learn to be flexible and to adapt the processes involved in the task-specific strategy to meet a variety of needs in other problem domains. For example, if students are being taught to organize and prioritize in the context of studying for tests, they might also be taught how to apply these skills in other problem-solving contexts. Original instruction might focus on how ideas can be depicted in a manner that clearly communicates relationships, as well as on the processes one used to prioritize what should be memorized first, second, third, etc. Later, after students have mastered application of the skills within the context of studying for a test, these same skills might be addressed within the context of a paragraph-writing task or a notetaking task. Naturally, the more experience students have in learning the skills associated with categorizing and prioritizing in specific contexts, the more readily they will be able to apply them in previously unencountered contexts.

A Working Instructional Model for Teaching Learning Strategies

The information presented in the previous two sections provides the underpinnings for a working model for teaching learning strategies. This working model has been operationalized through the specification of a sequence of eight instructional stages (See Figure 3). Specific "instructional stages" have been identified to denote different emphases in the instructional process. The procedures described for each stage focus on this emphasis and have been organized into specific phases of instruction. In addition, the procedures associated with each stage of instruction are employed over various periods of time and are unique to each stage of instruction. The time frame can range from as short as one instructional period to as long as several weeks for a given instructional stage.

Insert Figure 3 about here

There are two important instructional elements that have been incorporated into each instructional stage to promote learning and motivation: the use of organizers and principles of goal attainment. Since these elements are standard across the implementation of each instructional stage, they will be reviewed at this point and only aspects that are unique to a specific instructional stage will be addressed as each instructional stage is described. First, each instructional stage uses advance, lesson, and post organizers to promote learning. Each lesson begins with an advance organizer. The purpose of this organizer is to help the teacher: (a) gain the students' attention, (b) review relevant prior learning (c) make the connection between previous learning and the current instructional goals, (d) focus students' attention on the relationship between the activities of the day's lesson with the overall goal of mastering the new strategy, (e) personalize the lesson for students so they understand the benefits they will receive through the learning process, and (f) communicate specific learning and performance expectations. As each instructional stage is implemented, the teachers should use lesson

organizers to further cue organization, state expectations, prompt the integration of new information with previously learned information, and make relationships clear. Finally, a post organizer is provided that prompts students to review learning and evaluate whether expectations for learning and performance have been met. Second, the process of setting and evaluating goals related to strategy learning is incorporated into each instructional stage. To accomplish this, students set their own performance goals for the lesson, and, at the end of the lesson, evaluate their performance. Progress is noted on a chart and the student decides what must be accomplished in the next instructional period.

An overview of the key instructional behaviors associated with each stage of strategy acquisition and generalization is presented below. The instructional stages are presented in terms of the major focus of instruction, expected outcomes, and the critical components and processes associated with each stage.

Stage 1: Pretest and Make Commitments

Consistent with the underlying principle that instruction should be driven by student goals, the major purpose of Stage 1 is to have students *want to* make a commitment to learn the strategy. The intent of this stage, therefore, is to motivate students to learn a new strategy by making them aware of; (a) a specific setting demand encountered in many of their classes, (b) how they are performing with regard to this demand, and (c) of the existence of alternative approaches or strategies for meeting this demand. They are also informed about the results obtained by other students with similar learning habits and entry-level skills who have previously learned the new strategy. In short, through a discussion with the teacher, students are led to the following conclusions: (a) they are not meeting a particular setting demand in school, and, as a result, they are at-risk for failure; (b) their failure is not innate, but is a function of not knowing the best strategy for the task at hand; (c) there is an alternative approach (strategy) that can be used to produce success once it is learned and applied through consistent effort on their part; and (d) other students with similar difficulties in school have experienced success after using the new strategy.

Another purpose of this first instructional stage is to establish a baseline related to how each student is currently performing in meeting the targeted setting demand. By carefully observing students as they perform tasks related to the setting demand and by discussing with students how they approach specific tasks and how they feel when they are trying to respond to different task demands, teachers can determine students' current learning habits and anticipate the relative degree of instructional intensity that will be required to teach the new strategy.

There are two phases of instruction within this stage: an initial orientation combined with a pretest; and a phase where students become aware of their deficits and make a commitment to learn. When these two phases have been completed, a signed goal statement indicating a commitment to learn and apply the strategy and a record of the student's baseline performance should have been produced.

Phase 1: Orientation and Pretest: The purpose of the orientation and pretest phase is to introduce students to the importance of jointly (i.e., the teacher and the student) determining *how* students are approaching a specific curriculum demand (e.g., storing information from a lecture). Students need to understand, at this point, that the purpose of the probes or "tests" in this stage are not the same as ones given in the regular classroom. Here, the purpose is to try to "figure out" what strategies the student uses effectively and what current strategies/learning habits need to be modified or changed altogether. Thus, they need to know that how they score on the pretest will have no bearing on their grade in the course. Students also need to understand that the deficits to be identified through the pretesting process are specific to the task or setting demand, and they are not indicative of generalized deficiencies or inadequacies in the student. Often, students with a long history of academic failure have difficulty separating their worth as individuals from difficulties they may have in completing a

specific task. During this phase, the teacher should:

1. Give students rationales for this phase of the instructional process.

2. Provide an overview of the entire Pretest Stage and point out how it is tied into the rest of the instructional process.

3. Discuss how decisions will be made regarding instruction on strategies in the area being assessed. Specifically, the teacher must inform students that they will have a major voice, through the goal setting process, in determining whether to work on a given strategy.

4. Assess how students perform relative to a specific setting demand. This assessment should include observations of students' strategic *processes* and *products*. The processes to be observed include the general approach students might use to accomplish the task and the specific behaviors they display while approaching the task (e.g., what students do when attempting to take notes). The result of these processes is a product (e.g., a record of how much of the critical information students were able to include in their notes, how well this information was organized, etc.).

5. Use materials and tasks from the regular classroom (i.e., the setting where students must ultimately demonstrate mastery with the strategy) as the vehicles for the assessment process.

6. Score the student's products, compare each student's scores to the set mastery criteria, and determine whether the strategy is appropriate for each student who took the pretest.

Phase 2: Awareness and Commitment. One purpose of this phase is to make students aware of what was learned about them as learners as they were observed performing tasks and through the analysis of the products that they produced. In essence, this information represents their current habit(s) in coping with setting demands. A second purpose is to give students a general idea of the strategy that they can choose to learn as an alternative to their current approach to the task. Finally, students will make commitments related to learning the new strategy, and the teacher will make a commitment to students to teach the strategy in a manner that will promote the student's mastery and generalization of the strategy. As a part of this phase, the teacher should:

1. Review the results of the pretest. Care should be taken to discuss the student's performance according to *categories* of strengths and weaknesses. If the strengths and weaknesses are characterized in relation to categories, students will more easily understand their performance and the areas in which improvement is needed. As a result, they will be able to focus their goal setting and effort on these areas.

2. Briefly describe the alternative strategy for meeting the specified demand including the potential benefits of using the strategy to increase success at school, home, and work.

3. Describe what is required (in terms of time, energy, and commitment) to learn the new strategy.

4. Describe the kinds of results other students have achieved after learning the strategy.

5. Ask the student if he/she is willing to make a commitment to learn the new strategy in light of the information that has been presented.

6. Explain the commitment that the teacher is willing to make to effectively teach the strategy.

Stage 2: Describe the Strategy

The purpose of this instructional stage is to describe the new strategy in such a manner that students can: (a) become aware of the overt *and* covert processes involved in performing the new strategy; (b) become aware of how the steps of the strategy are used to approach academic tasks, solve problems and how self-instruction is used to regulate use of the steps; (c) clearly see how this new strategy is different from their current habit of problem solving; and (d) become motivated to learn and apply the new strategy. In short, the teacher clearly "paints a picture" of what the new strategy is all about and how its use will alter learning and performing.

During the Describe Stage of strategy acquisition and generalization, two phases of instruction are utilized. First, students receive an overview of the strategy and its application to specific setting demands. Second, they are made aware of the specific strategy steps and of their application to specific academic tasks.

Phase 1: Orientation and Overview. The purpose of the first phase of the Describe Stage is to orient students to different reasons for adopting the new strategy as an alternative method of problem solving. Students are also made aware of where and when the strategy is appropriately used and when not to use it. In addition, the importance of students actively listening and comparing the new strategy with how they typically approach tasks should be stressed. During this phase, the teacher should:

1. Ensure that students understand the rationales for learning the strategy and how the strategy can affect success across a wide number of settings.

2. Describe the general characteristics of situations in which the strategy can be used. Discuss examples of those situations and emphasize its relevance in school, home, work, and leisure settings.

3. Prompt the students to compare their old learning habits with the strategy as the discussion proceeds so they can discuss the differences at the end of the lesson.

Phase 2: Present the Strategy and the Remembering System. During this instructional phase students are exposed to the overall intent of the strategy as well as to the nature and purpose of each of the instructional steps. Instruction should emphasize both the overt and covert processes involved in effectively using the strategy. As a part of this phase of instruction the teacher should:

1. Describe the strategic processes involved in using the overall strategy. For example, students should be told that a particular strategy is effective because it helps them *transform* (e.g., cluster, organize, paraphrase, etc.) material into a form that is easier to understand and remember.

2. Describe, explain, and guide students to understand the overt and covert processes involved in each of the steps. This explanation should underscore for students the importance of the role of self-instruction when performing a

strategy. That is, students should realize that they should understand the steps well enough to be able to talk their way through the implementation of the strategy to both guide and monitor successful application of the strategy. Thus, the focus initially is *not* on learning to perform the steps of the strategy but rather on how one must use self-instruction to regulate use of the strategy steps.

3. Explain to students how to remember the strategy by discussing the remembering system that is used with the strategy.

4. Ensure that students understand the relationship between the remembering system and what is involved in applying the learning strategy with particular emphasis placed on the process of self instruction.

5. Through an open discussion, encourage students to compare and contrast the new strategic approach to their old approaches. This instruction should focus on how self-instructional use of the strategy steps differs from what they typically do when attempting to meet the setting demand.

6. Guide students to set individual goals for learning the strategy.

Stage 3: Model the Strategy

Research suggests that learning disabled and other low-achieving students may not use self-talk effectively to guide their performances (Warner, Schumaker, Alley, & Deshler, 1989). Thus teachers need to teach students these cognitive behaviors as well as the overt physical acts they need to perform as they complete a given task. The Model Stage of instruction is fundamental for teaching and demonstrating these cognitive behaviors. A frequently made mistake in the instructional process is to confuse the Describe Stage of instruction with the Model Stage. That is, teachers have traditionally not been trained to demonstrate their thought processes by "thinking aloud." Once this instructional process is mastered, teachers can greatly enhance the student's understanding of the strategy as well as the speed with which it is learned. In short, this step is considered to be the "heart of strategy instruction" (Schumaker, 1989). There are three major phases of the Modeling Stage.

Phase 1: Orientation. During this phase, the teacher *reviews previous learning* by covering the nature and purpose of the strategy steps and where and when the strategy can be applied. In addition, the teacher *personalizes the strategy* so that students understand how its use will benefit them. This phase also includes a *definition of the lesson content* where the teacher provides an explanation of what a model is and how it can help students as learners and a brief description of the activities in the lesson. Finally, *expectations* regarding student involvement during the lesson (e.g., such as instructions for students to watch the demonstration, pay particular attention to what the teacher says and does, and imitate what has been demonstrated) are stated by the teacher.

Phase 2: Presentation. This phase of the Model Stage is comprised of a teacher demonstration of the strategy. The demonstration includes all the elements of how to think and act while performing the strategy. It should be fluid and organized; thus, preparation and prior practice on the teacher's part are critical. Specifically, the demonstration emphasizes the cognitive acts required to perform the strategy through a thinking-aloud process. However, care should be taken to provide a balanced demonstration that shows enough of the cognitive processes involved to enable the student to understand the application of the strategy without bogging the demonstration down in a manner that will make the strategy appear difficult and

cumbersome. As a part of this phase, the teacher should:

1. Emphasize three types of cognitive processes while thinking aloud. First, the teacher demonstrate self-instruction (e.g., the teacher models how to cue oneself to use the next step of the strategy--"Let's see, the next step is 'Insert a letter'."). Second, the teacher models how to do problem solving (e.g.,' "Hmmm...I have a problem. There are nine items in this list, and I should only have seven. I know! I'll put four items together because they're all related to plants, and the other five can be grouped together because they are all related to animals."). Third, the teacher demonstrates the monitoring required while performing a strategy (e.g., "Let's see, where am I? I just finished checking for punctuation errors; next, I need to check for spelling errors.").

2. Demonstrate how to perform the task. Merely describing a performance (i.e., telling what to do) does not provide a true model of the thinking processes and physical acts that students can imitate. Therefore, the entire strategy must be demonstrated, and performance with regard to the whole task must be shown.

3. Avoid making mental leaps between specific steps or actions. Students will have difficulty making correct decisions throughout a strategy if they do not see the major thinking processes involved in a strategy modeled.

Phase 3: Student enlistment. During this phase students are prompted to gradually perform more and more of the required thought processes and physical acts themselves; that is, they become the demonstrators. Initially, students can be prompted to name the next step. Once mastered, they should be prompted to say what they would say as they: (a) check their progress, (b) evaluate their performance, (c) make adjustments, and (d) problem-solve. By involving students, the teacher can check their understanding of the strategy steps and the processes involved in performing them. Frequently, students will not be able to explain the covert processes involved in a strategy during the formal Model Stage of instruction. Students often find "thinking out loud" about the strategic processes to be difficult until they begin to understand how the strategy is applied. This level of understanding gradually emerges as instruction proceeds. Forcing students to "think-out-loud" before they are ready can sometimes bog instruction down and make using the strategy appear difficult. Therefore, students should be enlisted in a way that prompts maximum involvement at a level that is appropriate and at which success is guaranteed. Students can be enlisted in the modeling process more fully as part of the practice and feedback stages of instruction. As a part of this phase of instruction, the teacher should:

1. Require students to use the actual words they would say to themselves in using the strategy.

2. Provide feedback including correction and expansion of student responses during the exercise.

3. Prompt as much self-talk as possible.

4. Engineer as much success as possible by assigning tasks that students are likely to complete successfully and by prompting involvement that is easy at first and that gradually becomes more complex.

5. Draw students' attention to good performance models and emphasize the importance of imitating the processes they have seen and heard.

Stage 4: Verbal Elaboration and Rehearsal of the Strategy

The focus of this instructional stage is on ensuring comprehension of the process involved in applying the new strategy. To effectively use self-instructional processes while performing a strategy, students need to be able to use their own language structures to communicate with themselves about the strategic process. Thus, the instructional emphasis during this stage is on facilitating student mediation or elaboration of the key information presented to them so that it is restructured in terms of students' prior knowledge. There are two major phases involved in this instructional stage: verbal elaboration and verbal rehearsal.

Phase 1: Verbal elaboration. The purpose of this phase is to facilitate explanation of key information associated with the strategy in the students' own words. Initially, the focus of instruction is on facilitating students' ability to elaborate on what the overall strategic process is designed to accomplish and generally what the process involves. The obvious prerequisite to students being able to elaborate on the processes of a strategy is for them to clearly understand the intent of the overall strategy. Once students are able to describe the "big picture" in their own words, then the focus of instruction shifts to facilitating student elaboration of the specific strategy steps. Here, while looking at the list of the strategy steps, students describe what each step is designed to do and *why* it is an important component to the overall strategic process. Once students can accurately describe the strategy steps, they should be asked to elaborate on the role of self-instruction with regard to performing the strategy.

Phase 2: Verbal rehearsal. Before students can be asked to use a given strategy, they must learn to name the strategy steps at an automatic level. Thus, students are expected to commit the strategy steps to memory via rote rehearsal. Steps are memorized to fluent 100% mastery levels so that steps can readily serve as self-instructional cues for what to do as the strategy is performed. A procedure called "rapid-fire" practice is used to promote the memorization of the strategy steps. Using this method, the teacher points to each student in succession and requires the contribution of the next step of the strategy. This exercise begins slowly and students are called on in a predictable order. As they become more familiar with the steps of the strategy, the speed of the practice is increased, and students are called on in a random fashion. Students' verbal mastery of the steps is checked individually until they reach the mastery criterion.

Stage 5: Controlled practice and feedback

There are several instructional goals associated with this phase of instruction. One goal is to give students ample opportunity to practice using the new strategy with materials or in situations that are largely devoid of many of the demands found in regular class settings. A second goal is to build the students' confidence and fluency in using the strategy. Third, controlled practice is a major tool in helping students gradually take over (from teachers) the responsibility of mediating effective use of the strategy in their life.

Practice using the strategy is controlled along three major dimensions: (a) the type of instructional materials used, (b) the context within which the strategy is practiced, and (c) the amount of teacher/peer mediation that is employed. Each of these dimensions must be regularly and carefully considered if students are to successfully progress through this instructional stage. At the end of this stage, students should be ready to transfer their facility with the strategy to materials that are more difficult and that approximate those found in the regular class setting.

The first dimension that must be taken under consideration to achieve successful implementation of the Controlled Practice and Feedback Stage relates to the appropriate use of instructional materials. Initially, the stimulus materials used as students begin practicing the strategy should be devoid of many of the demands of the regular class setting (e.g., complex vocabulary and concepts, lengthy reading selections, etc.) so that students can focus their attention on learning the technique and can build confidence and fluency in performing the

strategy steps. As students become fluent in applying the strategy to these easier materials, increasingly more complex materials for practicing the strategy should be provided. Thus, students learn to use the strategy when interacting with materials that gradually approximate the difficulty of those found in their regular educational settings. For example, when practicing the Paraphrasing Strategy, students might first begin applying the strategy to reading materials well below their instructional levels that address topics of high-interest. Then, once students are able to perform the strategy when reading these easier materials, they are asked to apply the strategy to more challenging reading selections.

The second dimension that must be taken into consideration when implementing this stage relates to the context or *conditions* under which the strategy is practiced. During initial practice attempts, some students have benefited from working with the strategy in a *different* and less *complex* context. Many of the cognitive processes associated with performing a specific learning strategy can (and should be) practiced under conditions that do not require higher order skills. For example, when learning the Paraphrasing Strategy where students (a) read a paragraph, (b) stop and ask themselves what are the main ideas and details, and then (c) put the main idea and details into their own words, students might first learn to do the last two steps using the strategy in a reading-free context. The teacher might read the paragraph to students and then ask students to perform the cognitive processes associated with identifying and paraphrasing main ideas and details. Later, they might practice performing the whole strategy in a reading context. Therefore, the practice session is not only controlled by the materials that are used, the conditions under which the student must perform may also be controlled to enhance strategy learning.

The third important dimension of this stage of strategy instruction relates to the amount the teacher/peer mediation that might be employed. The degree of assistance provided by the teacher as students attempt to use the new procedure should also be carefully controlled. Initially, when students first practice using the strategy, the teacher provides *ample* cues and prompts to assure that students are performing the strategy steps appropriately and learning to use self-instruction. Then, as students become proficient at performing the strategy steps, teacher prompts are gradually faded until students can perform the strategy on controlled materials without assistance.

Like fading the use of prompts and cues, the role of the teacher in providing feedback also shifts as students become proficient at using the new strategy. Initially, feedback is totally teacher-directed. That is, the student is explicitly informed about what he or she is doing effectively and how to perform more effectively. Later, the nature of the teacher's feedback shifts; the teacher simply cues the student or gives the student partial information with the expectation that the student will be able to participate in the mediation of his or her own learning. That is, rather than providing all of the corrective feedback and reinforcement to the student, the teacher cues the student to analyze his or her own performance and provide himself or herself with corrective feedback and reinforcement. Through cooperative group structures or other peer tutoring arrangements (Johnson & Johnson, 1986; Kagan 1989; Slavin, 1989), students can also play a key role in mediating the learning process with each other. Later, the responsibility for learning and performance is deliberately and gradually passed from the teacher to the student.

The quality of feedback provided by teachers is also a key factor in affecting the gains that students experience during controlled practice. Kline (1989) found that 'elaborated feedback' was much more effective than feedback that merely provided students with 'knowledge of results.' Elaborated feedback entails categorizing the types of errors that students make and providing them with specific information that is both positive and corrective in nature. If necessary, it can also include the description and demonstration of a mini-strategy which may help the student avoid the same type of error in the future. The overriding purpose of elaborated feedback is to (a) have students understand the types of problems they are encountering in dealing with tasks, (b) translate the information into a plan to solve the problem, and (c) implement the plan to alter and improve performance.

The three dimensions described above are taken into consideration as the three phases involved in the Controlled Practice and Feedback Stage are implemented. Since the Controlled Practice and Feedback Stage may last for many days, the three phases described below detail how each practice session is conducted. Therefore, the three phases are repeated each time a practice session is held. First, the teacher orients the students to the practice session. Second, the teacher carefully guides the entire group of students through practice trials to ensure that the strategy is being applied correctly and that students understand the practice activities. Third, the teacher prompts independent practice and monitors individual performance.

Phase 1: Orientation and overview. As the Controlled Practice and Feedback Stage gradually moves from teacher-mediated to student-mediated instruction, it is important to orient students to the purpose of the specific practice activity and to inform them of their progress thus far in this stage of instruction. In addition, the teacher should review the critical components of the strategy as needed and focus student attention on the most common types of errors being made before the practice session begins. This orientation period also provides a good opportunity to discuss specific day-to-day instances where application of the strategy might be beneficial. During this phase of instruction the teacher should:

1. Initially review the steps of the strategy before each practice session and have students elaborate on what each step means. The frequency of these reviews is to be faded out gradually as students become proficient in describing the strategy steps.

2. Prompt students to review the results of previous practice attempts and identify the areas in which improvement is needed.

3. Identify and discuss group progress and errors. If necessary, review or re-explain aspects or applications of the strategy that are consistently being performed incorrectly.

4. Prompt students to describe how they could use or are using the strategy across different situations or settings.

Phase 2: Guided Practice. In the Guided Practice Phase, the teacher is concerned with ensuring that students are correctly performing the strategy in the manner intended. Since the instructional materials, the context, and the level of teacher or peer mediation may be shifting throughout this stage, it is often important for the teacher to lead students through some of the practice activities before allowing students to work independently. During this phase of instruction the teacher should:

1. Provide specific directions related to how the practice activity should be completed.

2. Model how the strategy is applied to the practice materials using a demonstration that approximates the behaviors discussed in the Model Stage of instruction described earlier. The model should be performed under the same conditions under which the students must perform the strategy. During the initial stages of practice, the model may be very detailed and explicit. However, as the daily practice sessions progress, the teacher model can be shortened and the students can be enlisted in performing the model.

3. Prompt students to complete the practice activity as the teacher models application of the strategy on the practice materials.

4. Prompt students to gradually assume more responsibility for completing the practice activity on their own without teacher guidance.

5. Provide clear and explicit instructions related to arranging peer-mediated practice sessions. Monitor practice activities and evaluate progress to determine the best groupings and conditions for arranging future peer-mediated practice sessions.

Phase 3: Independent Practice. In this phase of instruction, the teacher must allow the student to complete the practice activity independently. However, the teacher should monitor performance and look for opportunities to provide individualized and direct instruction to students on specific aspects of the strategy. During this phase of the instructional process, the teacher should:

1. Inform students to work independently applying the strategy.

2. Monitor performance by walking around the room to ensure that students are proceeding correctly.

3. When possible, provide additional information to students, on an individual basis, to prompt correct application of the strategy and completion of the task. If a student is having difficulty performing the strategy, the teacher can provide a model of the strategy using the practice activity as a basis.

4. Occasionally, prompt a student to "think aloud" as he or she completes the practice activity. This will enable the teacher to evaluate how the student is thinking about and using the strategy under different conditions.

5. Differentiate on the Progress Chart those practice trials for which substantial assistance was provided by the teacher and practice trials that were completed in an unassisted manner.

Stage 6: Advanced practice and feedback

The real test of students' mastery of a strategy is their ability to apply it to advanced assignments and materials that approximate those found in "criterion settings' (i.e., those settings where they were unable to cope originally, such as the regular classroom or the work place). This stage of instruction marks an important turning point in the overall learning process. Learning shifts from learning how to perform the strategy to learning how to apply the strategy to meet the various *real* demands typically found in the criterion environment. During this stage of instruction, students learn to apply the strategy to these real-life tasks while still in a setting (e.g., a remedial class) which can offer support as needed. Thus, students learn how to proficiently use and adapt, if necessary, the strategy to a wide variety of materials and assignments and to discriminate when the strategy is appropriate for meeting specific types of problems. As in the Controlled Practice and Feedback Stage, the amount and type of teacher mediation in the learning process should be gradually faded out over time. A deliberate change from teacher-mediated to student-mediated feedback must occur. Thus, as a part of this stage, the teacher should:

1. Provide a wide variety of grade-appropriate stimulus materials related to the setting demand. For example, if the setting demand the new strategy is designed to target is reading comprehension, then students should practice applying the new strategy to a wide variety of reading materials (e.g., health and history textbooks, newspapers and news magazines, etc.) appropriate for the grade in which the student is enrolled.

2. Structure assignments that require students to adapt the strategy to meet different characteristics of instructional materials. For example, if students are learning a textbook reading strategy designed to enable them to use textbook cues, some textbooks should require students to focus primarily on one form of cue (e.g., visual aides), while another might require students to focus on organizational cues (e.g., introductions, summaries, headings, etc.).

3. Structure assignments that allow students to practice in materials (or situations) that are poorly designed. Using the reading comprehension example, students should be asked to use the strategy in poorly designed textbooks (e.g., where visual aides and organizational cues are present, but they provide relatively useless information).

4. Fade the instructional prompts and cues so that students become responsible for taking initiative in using and evaluating the strategy in a variety of contexts. This involves having students ask themselves questions about their responses, thus enabling them to analyze the appropriateness of the strategy application and their performance.

The instructional phases that guide the daily implementation of this stage are the same as those described in the Controlled Practice and Feedback Stage. That is, in the **Orientation and Overview Phase**, the teacher should focus on reviewing progress, discussing the strategy as it is applied to advanced materials, and identifying critical errors that have emerged from applying the strategy to more difficult materials and circumstances. In the **Guided Practice Phase**, the teacher should focus on helping students see how the materials are becoming more difficult and how to discriminate cues signaling strategy use. Finally, during the **Independent Practice Phase**, the teacher should monitor the independent and correct application of the strategy in the advanced materials.

Stage 7: Confirm Acquisition and Make Generalization Commitments

This stage in the strategy-acquisition process focuses on documenting mastery of the strategy by students and building a rationale designed to involve students in promoting self-generalization of the strategy across settings. While earlier stages of the instructional process are critical to the learning process, this stage is critical to the application process. Unfortunately, many teachers who are successful at promoting the acquisition of a strategy have difficulty promoting the generalization process. In fact, many teachers often completely disregard generalization or attempt to address generalization merely through supplemental worksheets to be completed at the end of other lessons. As a result, many strategy-training efforts have failed to result in significant levels of generalization outside of the training setting because of the lack of teacher attention to the transition from the acquisition process to the generalization process. If the full benefits of strategy instruction are to be realized, significant instructional attention must be given to this transition.

There are two phases to this stage of instruction. The first phase focuses on confirming that the strategy has been mastered and affirming success. The second phase of this stage focuses on forecasting the generalization process and making commitments related to both the student's and the teacher's role in the generalization process.

Phase 1: Confirm and Celebrate Mastery. This phase of instruction provides an opportunity for the teacher and student to confirm and document that the procedural and strategic processes involved in the strategy have been acquired by the student. In practice, the mastery of the strategy has probably already been demonstrated by the student as part of the Advanced Practice and Feedback Stage of the instructional process. In fact, many teachers have reported that they simply use the last advanced practice attempt in which the student met the mastery requirements as the confirming posttest score. Nevertheless, once the student has met

the expectations, requirements, and goals related to performance on routine and daily practice efforts involved in the Advanced Practice and Feedback Stage of the instructional process, the student should have an opportunity to prepare for and confirm, to the best of his or her ability and with maximum motivation and effort, that he or she can perform the strategy and meet the demand. Therefore, the student is allowed to create a "trophy" about which he or she can be proud and that can be used as documentation on educational planning documents such as the IEP.

The activities implemented in this phase should serve to prompt the student and the teacher to celebrate the results of their efforts and commitments. If the student has set goals related to acquiring and applying the strategy and has worked hard to meet these goals, then time should be devoted to affirming progress and reviewing what did and did not work along the way. Both the student and teacher should reflect and discuss their efforts and be prompted to say, "I did great." To accomplish the goals associated with this phase, the teacher should:

1. Prompt each student to identify that he or she has met the mastery criteria associated with the Advanced Practice Stage.

2. Arrange for a final confirmation of mastery when a student informs the teacher that he or she has met the specified mastery criteria.

3. Inform the student that he or she will have an opportunity to perform the strategy in order to confirm mastery and to prepare by reviewing the strategy.

4. Provide the student with the appropriate task, and allow the student to complete the task under appropriate classroom conditions.

5. If the student does not meet the mastery criteria, provide encouragement and feedback and arrange for continued practice. However, if the student confirms mastery by meeting the mastery criteria, the student should be congratulated by the teacher.

6. Arrange for a special opportunity to talk to the student about his or her achievement and review with the student all the effort and learning that contributed to his or her success.

7. Work with the student to identify and implement different ways to recognize the accomplishment.

Phase 2: Forecast and Commit to Generalization. Within this instructional phase, the student and the teacher should make commitments related to ensuring that the student generalizes the strategy across settings, situations, and time. As part of this process, the teacher must adopt an instructional philosophy in which the success of strategy instruction is defined only by the degree to which the student uses the strategy to meet demands across regular classroom and other natural settings. In addition, this perspective must be transferred to students. Therefore, the teacher must:

1. Explain the general goals of the generalization process.

2. Identify specific consequences related to focusing versus not focusing attention on the generalization process.

3. Explain the four phases of the generalization process and what will be involved in each of the four phases.

4. Prompt the student to make a commitment to participate in and put forth maximum effort in the generalization process.

5. Explain the commitments of the support-class teacher and regular-class teachers in assisting students in the generalization process.

Stage 8: Generalization

Students who have mastered specific strategies in the support class setting often do not automatically use these strategies to facilitate learning across content settings (Ellis, et al, 1987a, 1987b). For strategy instruction to be worthwhile, students must generalize the strategy to other settings. Successful generalization requires active, independent application and adaptation of the strategy across settings and tasks that vary in complexity and purpose. Students must also be able to recognize naturally occurring cues across settings that signal appropriate opportunities for applying the strategy. Therefore, the instructional processes for promoting generalization must focus on enabling the student to: (a) discriminate when to use the strategy to meet everyday learning and performance demands, (b) develop methods for remembering to use the strategy appropriately, (c) experiment with how the strategy can be used across circumstances encountered across settings, (d) receive and use feedback to develop goals and plans to improve performance, (e) adapt the strategy to meet additional problems and demands, and (f) incorporate the strategy and various adaptations of the strategy into the student's permanent system for approaching problems across settings and time. To facilitate the application of these processes, the Generalization Stage of the instructional process has been divided into four phases: 1) the Orientation Phase, 2) the Activation Phase, 3) the Adaptation Phase, and 4) the Maintenance Phase. Each of these phases will be briefly described.

Phase 1: Orientation. The purpose of the Orientation Phase of generalization is to make the student aware of the necessity of applying the strategy in a purposeful manner to meet relevant setting demands and to help the student get prepared for the generalization process. As part of this process, the teacher prompts the student to evaluate the pros and cons of using the new strategy and to begin to explore how the strategy might be used beyond the context in which it was taught (Ellis et al., 1987a, 1987b). During this phase of generalization, the teacher should prompt students to:

1. Identify rationales for using the strategy across settings.

2. Explain why specific attention to strategy transfer and generalization is necessary.

3. Identify which settings are most likely to require use of the strategy.

4. Discuss how they might remind themselves to use the strategy in different settings.

5. Construct cue cards on 3" by 5" cards and place the cards in textbooks, notebooks, and other materials used in settings in which the strategy might be applied.

6. Specify cues that exist in specific settings and across settings that will signal use of the strategy.

7. Review different types of materials that they might encounter across settings and discuss how the strategy might or might not be applied.

8. Deliberately evaluate materials where the strategy should not be applied and discuss reasons why the strategy is not appropriate.

9. Discuss which aspects of the strategy seem to be most helpful and least helpful and then discuss how this information can be used to increase performance.

10. Generate ways to improve or adjust the strategy to make the strategy more responsive to setting demands.

11. Identify other strategies and procedures that might be combined with this strategy to make the strategy more effective and improve overall performance.

12. Make cards on which they write affirmations that connect use of the strategy with success in meeting a particular setting demand (e.g., "I am a successful writer when I monitor my errors".) and which are to be reviewed on a daily basis.

Phase II: Activation. The purpose of the Activation Phase of generalization is to prompt the student to purposefully use the strategy, monitor a student's application of the strategy across a wide variety of materials, situations, and settings, and to prompt appropriate application of the strategy when generalization does not occur. To accomplish this, the responsibility for promoting generalization, heretofore generally left to the support-class teacher and the student, must be shared by other individuals, such as the regular classroom teacher, with whom the student comes in contact across a variety of settings. Therefore, the activities in this phase of the generalization process must focus on a variety of interactions that must take place among the support-class teacher, the student, and the regular classroom teachers. Initially, the support-class teacher should prompt students to:

1. Apply the strategy to a specific assignment related to another class and, afterwards, demonstrate and describe how the strategy was used to complete the assignment.

2. Apply the strategy to a variety of assignments that must be done at home or in the regular classroom setting and demonstrate and describe how the strategy was used to complete these assignments.

3. Set daily and weekly goals related to increasing the use of the strategy to a variety of settings and situations and to improving performance.

4. Develop a plan related to how to increase application of the strategy to meet these goals.

5. Review their affirmation cards on a daily basis.

6. Monitor implementation of the plan and the effects of using the strategy across different settings and situations.

7. Enlist the help of the support-class teacher and/or the regular-class teacher in order to solve problems related to applying the strategy.

8. Request feedback from regular-class teachers related to improved performance in the areas specifically addressed by the strategy.

9. Develop a chart and record progress related to applying the strategy and its results on related measures of classroom performance.

10. Reinforce progress and success in the form of self-congratulatory statements and, if necessary, extrinsic rewards.

While part of the responsibility for ensuring generalization of strategies rests with the support-class teacher, the regular classroom teacher, who teaches such subjects as social studies, language arts, or science, must also assume responsibility for facilitating the generalization process. The primary instructional goals related to promoting strategy generalization in the regular classroom are to: (a) help the student see the relationship between the demands of the setting and appropriate strategies, and (b) guide the student to the automatic and independent identification and application of strategies to successfully meet setting demands (Lenz & Bulgren, in press). Therefore, the key to facilitating strategy generalization rests in the ability of teachers to ensure that sufficient opportunities are available to the student to apply the strategy and to experience success in meeting setting demands.

As a result, the content teacher should be in communication with the support class teacher to inform him or her of the demands that the student is not meeting. While the degree of involvement of the content teacher in the intervention process may vary at this point, the content teacher must be informed of the types of strategies that will be acquired by the student and what skills are involved in performing each strategy. Afterward, the support-class teacher and the content teacher should communicate regularly to determine the student's progress with regard to generalization of the pertinent strategy. Thus, the support-class teacher should be communicating regularly with the content teacher(s), providing feedback to the student on his or her progress in the generalization process, and helping the student to set and plan for long-term application of the strategy across settings. However, each regular-classroom teacher needs to be prompted to monitor if the strategies that are being used are meeting the specific learning demands presented in or characteristic of his or her content area.

A number of systems have been discussed and developed in an attempt to accomplish these goals (e.g., Ellis et al., 1987(a) &1987(b); Deshler, Schumaker, & Lenz, 1984; Schumaker, Deshler, & McKnight, in press; Lenz, Schumaker, Deshler, & Beals, 1984). Lenz and Bulgren (in press) presented the following synthesis of procedures based on research related to promoting generalization of strategies across settings. In general, the regular-classroom teacher should be prompted to:

1. From the support-class teacher, obtain a short description of the strategy that has been taught to the student, the conditions or criteria for correct and successful application, and what the student has been taught with regard to applying the strategy in content lessons.

2. Determine if the student has been taught to identify specific cues to indicate when a strategy or part of a strategy is to be used.

3. Evaluate teaching materials, presentation routines, and classroom activities to ensure that sufficient cues are available in order for the student to be able to identify when to use a specific strategy.

4. Determine which situations and activities in the content classroom best lend themselves to direct monitoring of strategy generalization.

5. Initiate direct generalization monitoring by simply *checking* to see if the strategy is being used. If this cannot be determined by direct observation or review of permanent products, then the regular-class teacher should ask the student if the strategy was used and have the student explain how he or she used the strategy.

6. *Cue* use of the strategy if the student has not started to use the strategy after several checks. As part of generalization instruction provided by the support-

class teacher, the student should have a 3" x 5" cue card with a list of the strategy steps written on it. The regular classroom teacher can check to see if this cueing system has been implemented, and if it has not, prompt the student to design his or her own cue card. More direct ways for cueing strategy use might include: (a) discretely telling the student to use a particular strategy; (b) informing the whole class to use a particular strategy on a routine basis; (c) putting the name of the strategy on the chalkboard or bulletin board and pointing to it at appropriate times; and (d) prompting peers who know the strategy to cue those students who are just beginning to learn and apply the strategy.

7. If the student does not begin to respond to cues after a short period of time, the teacher might ask the student to list the steps of the strategy and ask how the first step would be accomplished. The teacher might then watch the student as he or she performs the first step.

8. If the student seems unable to perform the steps of the strategy, the teacher should determine if the student can see the relationship between the strategy and the specific demands of a class. The teacher might also *model* how the strategy can be applied to meet the content learning demand and require the student to imitate the model.

9. Once the student is applying the strategy, the teacher should provide *feedback* to the student on the outcomes related to the use of the strategy, what the student is doing right, what the student is doing wrong, and how to improve performance. A written and/or verbal system for providing specific feedback to students should be developed and routinely used to facilitate and then collaboratively work with students to plan how specific problems or errors can be reduced.

Phase III: Adaptation. The purpose of the Adaptation Phase of generalization is to prompt students to explore the strategy by identifying the various cognitive strategies in which they are engaging as the strategy is performed and to begin to change and integrate the elements of the strategy in order to meet new and different setting demands. As part of this phase of generalization, the teacher should prompt students to:

1. Describe the strategy and all of its parts as the teacher writes the features of the strategy on the chalkboard.

2. Discuss what they are actually doing and thinking about as each step of the strategy is applied.

3. Identify, with teacher guidance, the various cognitive strategies that are embedded in the strategy (e.g., self questioning, clustering, categorizing, monitoring, checking, predicting, summarizing, paraphrasing, etc.).

4. Describe, with teacher assistance, what cognitive processes are involved in each of those strategies.

5. Discuss how and where these cognitive process/strategies are required across different settings.

6. Identify, with teacher assistance, how the strategy can be modified to meet additional setting demands (e.g., "How can we modify the Paraphrasing Strategy

to help us in notetaking? How could we make paraphrasing work in the social skill of carrying on a conversation?")

7. Write down the strategy modifications and how they can be used.

8. Repeat the necessary orientation and activation activities that might be necessary to learn to apply the modifications.

Phase IV: Maintenance. The purpose of the Maintenance Phase of generalization is to ensure that the student continues to use the strategy across time and contexts. In this phase of generalization, the student and teacher jointly develop plans related to promoting long-term use of the strategy. During this phase of generalization, the teacher should prompt students to:

1. Discuss rationales related to long-term use of the strategy.

2. Identify habits and barriers that might prevent them from continuing to use the strategy.

3. Determine how they might monitor long-term application of the strategy.

4. Discuss ways that the teacher can help to monitor long-term application and successful use of the strategy.

5. Set goals related to monitoring long-term application of the strategy.

6. Determine how many times a week the teacher should check use of the strategy.

7. Determine how this check will be conducted and if other teachers or students will be involved (e.g., peer checks, classroom products or assignments).

8. Specify, with guidance from the teacher, the criteria for successful performance of the strategy at the various "check" points.

9. Plan, with guidance from the teacher, the procedures that will be used to improve performance if they are not applying the strategy effectively or efficiently.

10. Review their affirmation cards daily.

11. Determine the length of time during which weekly maintenance checks will be required before bi-weekly maintenance checks are implemented.

12. Discuss and identify when the strategy can be considered a permanent part of their approach to meeting setting demands and when maintenance checks will be no longer needed.

13. Develop a chart and begin to record the results of efforts to maintain use of the strategy.

14. Identify self-reinforcers or self-rewards that can be used in conjunction with successful maintenance of the strategy.

Conclusion

There is a growing body of research that illustrates that teaching students to use task-specific learning strategies can markedly affect their performance in academic and nonacademic situations. This research suggests that there are several elements essential to effective strategy instruction (Swanson, 1989). Central among these elements is the way in which task-specific learning strategies are taught to students. The purpose of this article has been to discuss an instructional sequence that KU-IRLD research and experience has shown to be effective in enabling students to become strategic learners. Regardless of the instructional stages discussed above, it is obvious that the teacher is *the* key ingredient in helping students make the transformation from ineffective, at-risk performers to effective and efficient strategy users. Not only must teachers carefully and skillfully follow the different stages of instruction but they must pinpoint various problems that students encounter along the way and modify instruction accordingly. In addition, the success of the learning process seems to depend, in large measure, on how much excitement and commitment the teacher brings to the learning situation. In short, teachers' instructional skills, as well as their mind set and enthusiasm for how much students can improve their learning by acquiring learning strategies greatly enhance the instructional process.

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Figure Captions

Figure 1: Critical Features Affecting Strategic performance

Figure 2: The Paraphrasing Strategy

Figure 3: A Working Model for Teaching Learning Strategies: The Stages of Strategy Acquisition and Generalization

Figure 1

Critical Factors Affecting Strategic Performance

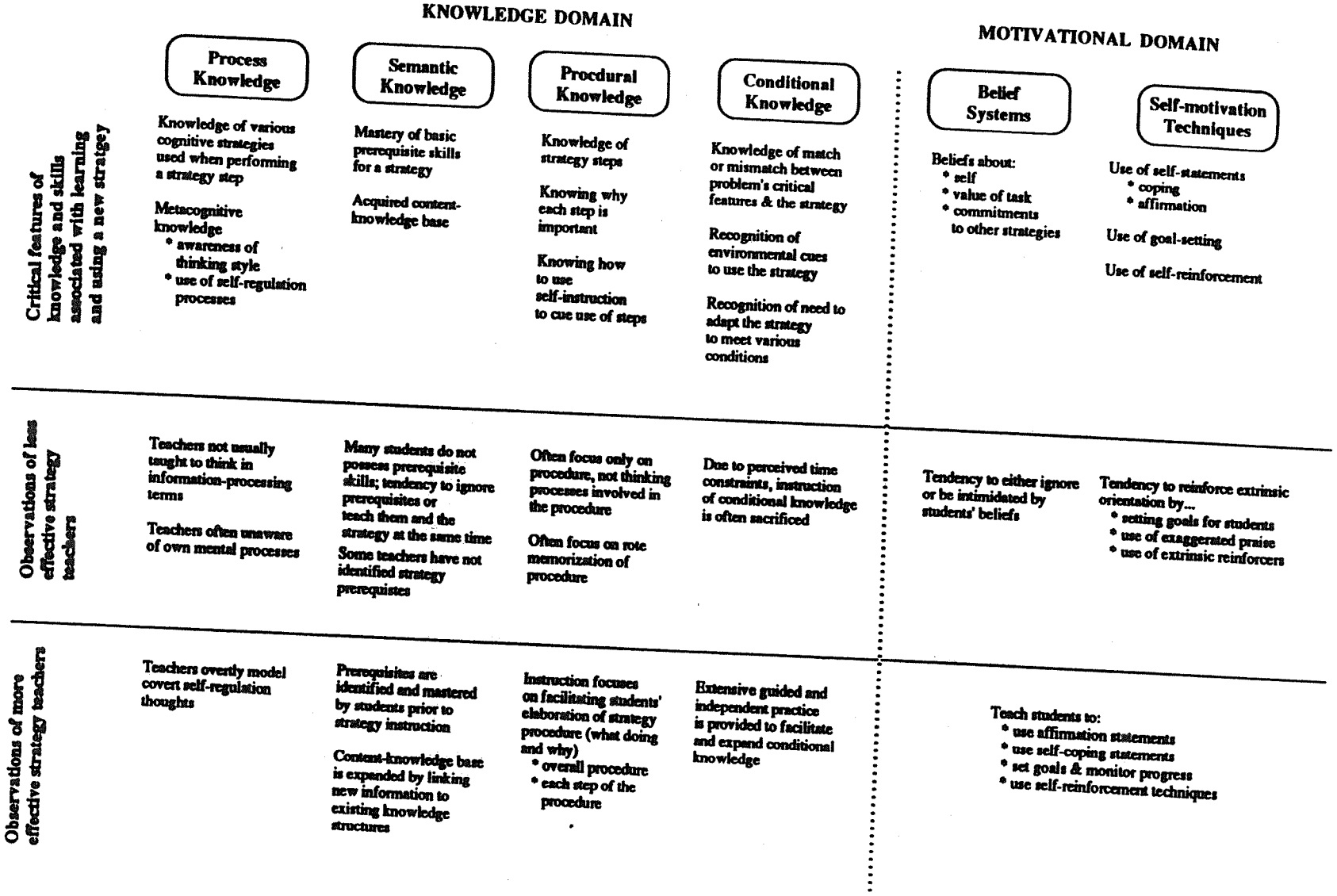

Figure 2

The Paraphrasing Strategy

Read a paragraph

As you are reading the paragraph, look for topic sentences or clue words that signal the main ideas and details.

Ask yourself, "What are the main ideas and details in this paragraph?"

Ask yourself, "What was this paragraph about?" and "What should I remember about it?"

Put the main idea and details into your own words

Say, "This paragraph is about_____."

Figure 3

A Working Model for Teaching Learning Strategies:

The Stages of Strategy Acquisition and Generalization

Stage 1: Pretest and make Commitments
- Phase 1: Orientation and pretest.
- Phase 2: Awareness and commitment.

Stage 2: Describe the strategy
- Phase 1: Orientation and overview
- Phase 2: Present strategy and remembering system

Stage 3: Model the strategy
- Phase 1: Orientation
- Phase 2: Presentation
- Phase 3: Student enlistment

Stage 4: Verbal elaboration and rehearsal
- Phase 1: Verbal elaboration
- Phase 2: Verbal rehearsal

Stage 5: Controlled practice and feedback
- Phase 1: Orientation and overview
- Phase 2: Guided practice
- Phase 3: Independent practice

Stage 6: Advanced Practice and feedback
- Phase 1: Orientation and overview
- Phase 2: Guided practice
- Phase 3: Independent practice

Stage 7: Confirm acquisition and make generalization commitments
- Phase 1: Confirm and celebrate
- Phase 2: Forecast and commit to generalization

Stage 8: Generalization
- Phase 1: Orientation
- Phase 2: Activation
- Phase 3: Adaptation
- Phase 4: Maintenance