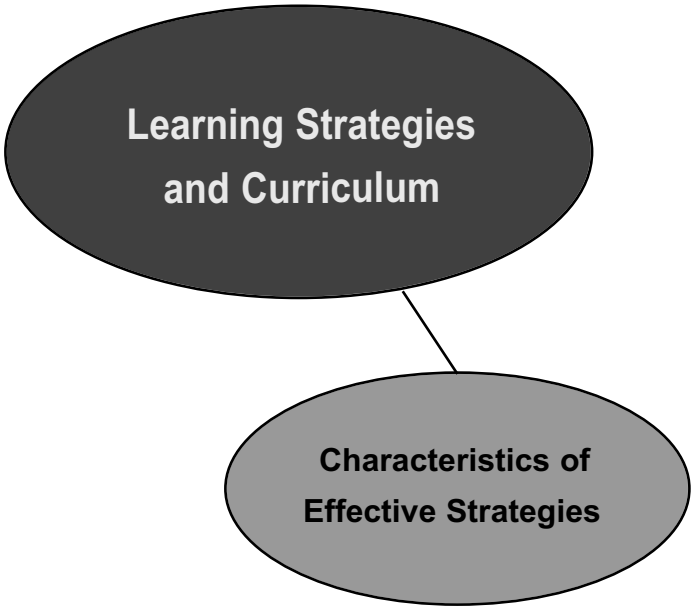
The Learning Strategies Curriculum

Advance Organizer

If you studied the previous sections of the Resource Notebook, you understand what good reading comprehension instruction entails and what strategic instruction in reading comprehension is all about. You also learned a specific instructional model for teaching reading comprehension strategies effectively. In this section you will learn about the Learning Strategies Curriculum of the University of Kansas, Center for Research on Learning, which provides tools for strategic instruction in reading comprehension and other areas.



At the end of this lesson you should be able to answer the following questions:

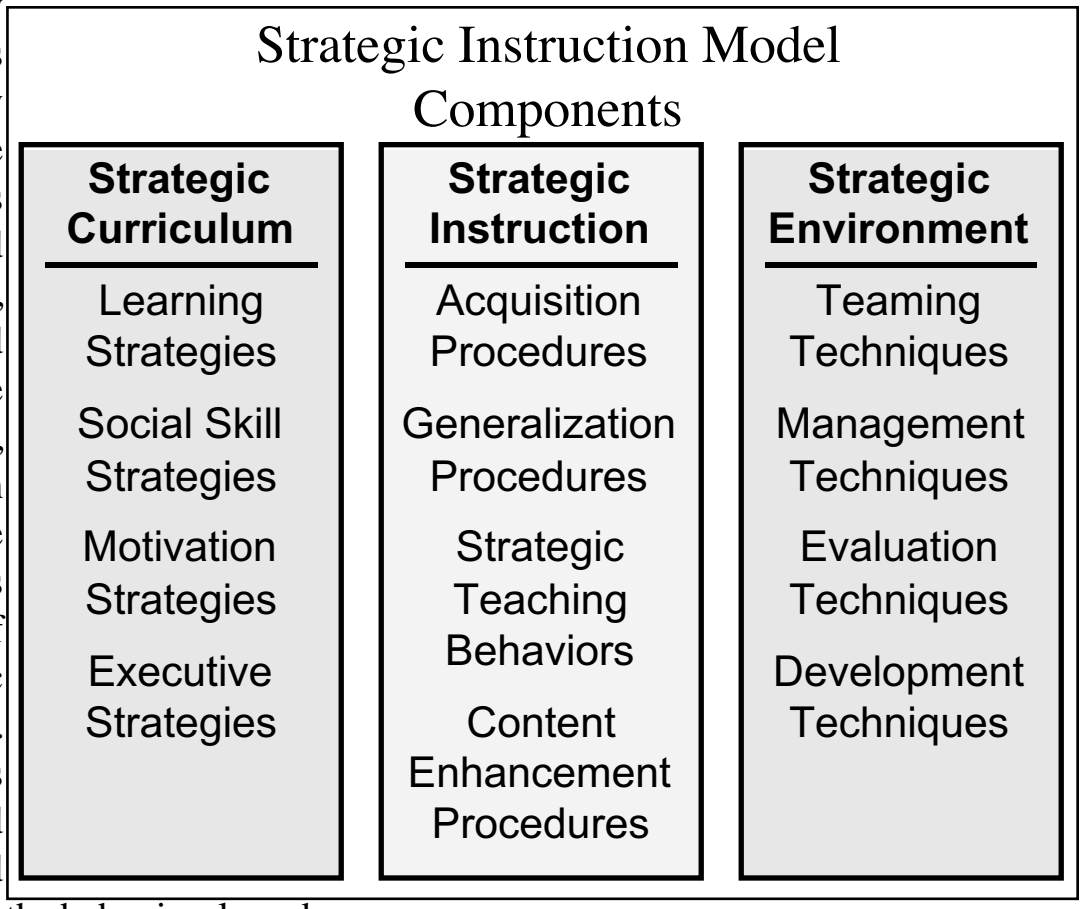
1. What are the learning strategies that are part of the Learning Strategies Curriculum and for whom have they been developed?
2. What evidence exists that learning strategies are effective in promoting learning and performance?
3. What are the characteristics of good learning strategies?

In almost every educational setting there are some students who are low achievers. The causes of low achievement vary, but in many instances students perform poorly because they have not learned how to learn or how to perform tasks necessary for school success. Common among students with disabilities and other low-achieving students is difficulty knowing how to approach reading comprehension.

Recent research has shown that students can be taught how to learn and how to perform school-required tasks, including reading comprehension, by using learning strategies. Learning strategies are techniques, principles, or rules that enable a student to learn to solve problems and complete tasks independently. Learning strategy instruction focuses on both how to learn and how to effectively use what has been learned.

The Learning Strategies Curriculum

One of the most fully developed approaches to learning strategy instruction is the Learning Strategies Curriculum developed by Donald Deshler, Jean Schumaker and their colleagues at the University of Kansas, Center for Research on Learning. The Learning Strategies Curriculum is part of the Strategic Instruction Model. This model facilitates strategic teaching and learning and is based on research from both behavioral and cognitive psychology. The overriding goal associated with the Learning Strategies Curriculum is to enable students to learn skills and content and to perform tasks independently. The Learning Strategies Curriculum consists of task-specific learning strategies that have been designed to improve a student's ability to cope with specific curriculum demands.



The strategies that have been developed are listed below in the following categories:

- Strategies related to reading
- Strategies related to storing and remembering information
- Strategies related to expressing information
- Strategies related to demonstrating competence
- Strategies related to social interaction
- Strategies related to mathematics

The Learning Strategies Curriculum

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Strategies Related to Reading

- **Word Identification Strategy**

A strategy that provides challenged readers with a functional and efficient way to successfully decode and identify unknown words in their reading materials. The strategy is based on the premise that most words in the English language can be pronounced by identifying prefixes, suffixes, and stems, and by following three short syllabication rules.

- **Visual Imagery Strategy**

A reading comprehension strategy for creating mental movies of narrative passages. Students visualize the scenery, characters and action, and describe the scenes to themselves.

- **Self-Questioning Strategy**

A strategy that helps students create their own motivation for reading. Students create questions in their minds, predict the answers to those questions, search for the answers to the questions as they read and talk to themselves about the answers.

- **Paraphrasing Strategy**

Designed to help students focus on the most important information in a passage. Students read short passages, identify the main idea and details, and rephrase the content in their own words.

Strategies Related to Storing and Remembering Information

- **FIRST-Letter Mnemonic Strategy**

A strategy for independently approaching a large body of information that needs to be mastered. Specifically, students identify lists of information that is important to learn, generate an appropriate title or label for each set of information, select a mnemonic device for each set of information, create study cards and use the study cards to learn the information.

- **Paired Associates Strategy**

Designed to help students learn pairs of informational items like a name and an event, a place and an event or a name and an accomplishment. Students identify pairs of items, create mnemonic devices, create study cards and use the study cards to learn the information.

- **Vocabulary Strategy**.

Helps students learn the meaning of new vocabulary words using powerful memory-enhancement techniques. Strategy steps cue students to focus on critical elements of the concept, to use visual imagery, associations with prior knowledge and key-word mnemonic devices to create a study card, and then study the card to enhance comprehension and recall of the concept.

Strategies Related to Expressing Information

- **Proficiency in Sentence Writing Strategy**

A strategy for recognizing and writing 14 sentence patterns with four types of sentences: simple, compound, complex, and compound-complex. The strategy consists of two products: an Instructor's

Manual and a Student Lessons Manual. The Instructor's Manual features a systematic sequence of instructional procedures; the Student Lessons Manual includes exercises that correspond to instructional procedures.

- **Paragraph Writing Strategy**

A strategy for organizing ideas related to a topic, planning the point of view and verb tense to be used in the paragraph, planning the sequence in which ideas will be expressed, and writing a variety of topic, detail and clincher sentences. The strategy consists of two products: an Instructor's Manual and a Student Lessons Manual. The Instructor's Manual features a systematic sequence of instructional procedures; the Student Lessons Manual includes exercises that correspond to the instructional procedures.

- **Error Monitoring Strategy**

A strategy that students can use to independently detect and correct errors in their written work to increase the overall quality of their final product. Instruction stresses the importance of proofreading written work for content and mechanical errors and eliminating such errors before the work is submitted. The strategy also includes the development of personal strategies to avoid future errors.

- **InSPECT Strategy**

A strategy students use to detect and correct spelling errors in their documents by using either a computerized spellchecker or a hand-held spelling device.

Strategies Related to Demonstrating Competence

- **Assignment Completion Strategy**

Designed to enable students to complete and hand in assignments on time. The package consists of two books: the Instructor's Manual, which provides step-by-step instruction for teaching this strategy, and the Quality Quest Planner, a spiral-bound notebook designed specifically for student use with the strategy. Each Instructor's Manual comes with one Quality Quest Planner and contains the materials needed to teach the strategy, including blank copies of the forms used with the planner. The planner contains sufficient forms for recording, scheduling, and evaluating assignments for an entire academic year.

- **Test-Taking Strategy**

A strategy to be used while taking classroom tests. Students allocate time and priority to each section of the test, carefully read and focus on important elements in the test instructions, recall information by accessing mnemonic devices, progress through a test quickly and systematically, make well-informed guesses, check their work and take control of the testing situation. The emphasis is on teaching adolescents and adults who struggle with learning.

Strategies Related to Social Interaction

- **The Class Participation Strategy**

A simple, easy-to-teach strategy designed to help students learn how to use appropriate posture, track the talker, activate their thinking, and contribute information. SLANT is the name of the strategy.

- **Cooperative Social Skills**

Describes a set of social skills called the "Score Skills" that are fundamental to effective group work. Students learn to share ideas, compliment others, offer help or encouragement, recommend changes nicely and exercise self-control. SCORE and TEAMWORK are the manuals in this set.

- **Cooperative Thinking Strategies**

Building upon the skills introduced in the SCORE Skills program, these strategies provide frameworks for organizing and completing cooperative thinking tasks in small groups. Each program in the series focuses on one cooperative thinking task: learning information, solving a problem, resolving a controversial issue and taking a project to conclusion. THINK, LEARN, and BUILD are the manuals in the series.

- **Self-Advocacy Strategy**

A strategy students can use when preparing for and participating in any type of conference, including education and transition planning conference (i.e., IEP or ITP conference). Strategy steps provide students with both a way of getting organized before a conference and effective communication techniques to use during the conference.

Strategies Related to Mathematics

- **Addition and Subtraction Strategies**

These strategies focus on how to teach the place value skills necessary for mastering addition and subtraction, solving basic addition problems involving the numbers 0 to 18 and solving basic subtraction problems involving the numbers 0 to 18. The math strategies can be used with any-age student who needs to learn basic math facts and operations. Content is built upon the concrete-representational-abstract method of instruction. Within this approach, understanding of mathematics is developed through the use of concrete objects, representational drawings and an easy-to-learn strategy that turns all students into active problem-solvers. Student problem-solving skills are developed through a graduated sequence of word problems.

- **Multiplication and Division Strategies**

These strategies focus on how to teach multiplication and division facts involving the numbers 0 to 81. The math strategies focus on how to teach any-age student who needs to learn basic math facts and operations. Emphasis is placed on instruction for students who struggle learning math operations. Content is built upon the concrete-representational-abstract method of instruction. Within this approach, understanding of mathematics is developed through the use of concrete objects, representational drawings, and an easy-to-learn strategy that turns all students into active problem solvers. Student problem-solving skills are developed through a graduated sequence of word problems. Materials feature motivational games.

The Professional Development Academy-Enhancing Reading Comprehension

- The Paraphrasing Strategy
- The Self-Questioning Strategy
- The Visual Imagery Strategy

Many of the materials for the Strategic Instruction Model are typically available to the public through training delivered by certified instructors. There are over 1,000 certified trainers throughout the United States and Canada, most of them based in schools and school districts. This professional development academy provides you the opportunity to learn the three strategies related to reading comprehension: the Paraphrasing Strategy, the Self-Questioning Strategy and the Visual Imagery Strategy.

Other components of the Strategic Instruction Model also exist. For example, the Content Enhancement Series consists of teaching routines that are designed to help teachers enhance content instruction. For additional information about the entire Strategic Instruction Model (SIM), visit the University of Kansas-Center for Research on Learning website: www.ku-crl.org.

Targeted Students

The Learning Strategies Curriculum has been designed and found most appropriate for students in the middle grades (5-6) through post secondary education. Students who have responded most favorably to the curriculum are those described as low achieving, underachieving and at risk and include students from diverse cultures, as well as students with emotional handicaps, or learning disabilities. Specifically, we have found that students who exhibit reading skills at the fourth grade level or higher respond most successfully to instruction in learning strategies.

Effectiveness Validation

The learning strategies have been successfully field-tested with students judged to be at risk for academic school failure as well as with students judged to have learning disabilities. The research took place in public schools, primarily in middle and high schools where the strategies were field-tested by teachers. Research has demonstrated that consistent, intensive, explicit instruction and support are key ingredients for instructional success. Since

1978, more than 80 studies involving more than 1,000 students have demonstrated the appropriateness of various applications of this instructional approach and the benefits that can be achieved for many students with disabilities. In addition, ongoing research has continued to refine and develop the instructional dimensions of the approach, and current research efforts promise to expand its applications. All of the strategies are taught using a standard set of instructional procedures. These instructional procedures are described in the section of the Resource Notebook called "Instructional Stages of Strategic Teaching."

Goals of the Learning Strategies Approach

Different individuals employ different strategies when completing similar tasks. Unfortunately, some approaches do not always lead to success. Thus, some strategies are effective while others are not. The goal of a strategies approach is to identify strategies that are optimally effective. These strategies will help the student meet the demands of current as well as future tasks. The strategies should also be efficient helping students meet the demands of a task in an appropriate, timely, judicious, and resourceful manner.

To illustrate this concept, consider four students studying for a biology test: Kana, Aman, Sally and Fran. Each used different strategies to study. Kana and Aman each received "A's" on their test, whereas both Sally and Fran received "F's." Thus, the strategies Kana and Aman employed were effective; by contrast, the strategies Sally and Fran used were not. In terms of the efficiency of their strategies, Kana studied 6 hours for the test; and Aman studied only 1 1/2 hours. Thus, while both used effective strategies, only Aman used a strategy that was both effective and efficient.

Characteristics of Effective Learning Strategies

Strategies that are both effective and efficient share characteristics that fall into three categories: content features, design features, and usefulness features. The content refers to the strategy steps and what they are designed to facilitate during the learning process. The design features refer to how the steps are packaged to facilitate learning and subsequent use of the strategy. Finally, the usefulness feature refers to the potential transferability of the strategy to everyday needs in a variety of settings Ellis and Lenz (1987).

Content Features

The content features of the strategy relate to how well the process of meeting a common setting demand has been specified in terms of both mental and physical actions. The critical features that must be considered generally relate to the extent to which the strategy has incorporated sound principles of learning and has been found to facilitate a more effective and efficient response to meeting a demand. To summarize, the content of an effective strategy provides guidelines for how to think and act when planning, executing and evaluating performance on a task and its outcomes. It should guide the student's approach to a task while promoting flexibility that will enable the student to meet unexpected circumstances and situations that may be associated with the task at any given time.

Content Features

- Lead to a specific and successful outcome.
- Are sequenced in a manner that leads to an efficient approach to the task.
- Cue students to use specific cognitive strategies.
- Cue students to use metacognition.
- Cue students to select and use appropriate procedures, skills, or rules.
- Cue the students to take some type of overt action.
- May be preformed by students in a limited amount of time.
- Are essential and do not include unnecessary steps or explanations.

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Although a strategy may not contain all of these features, the intervention is more likely to be strategic if the following features are included in the intervention:

1. Effective learning strategies contain a set of steps that lead to a specific and

successful outcome. A strategy is not a collection of suggestions and guidelines that result in separate outcomes. Rather, it is a set of steps that organizes the approach to the task and results in successful completion of the task. Although individual units of performance may be evaluated (e.g., "How well is the student performing the second step in the visual imagery strategy?"), one outcome always is used to judge the ultimate success of the strategy (e.g., "Did the strategy help the student understand the material?"). This enables the student to examine the result of his or her effort and begin to evaluate the effectiveness of the strategy.

2. The steps of an effective strategy are sequenced in a manner that leads to an efficient approach to the task. A strategy is not a collection of good ideas organized into a set of steps. A strategy that simply leads to completion of the task is not enough. A strategy must be a collection of "best" ideas organized in the "best" sequence that leads to the "best" mental and physical actions for the task.

The approach that is "best" for adults is not necessarily "best" for youth. For example, whereas adults often stop to check comprehension after completing chunks of reading passages consisting of multiple paragraphs, adolescents with learning disabilities who are struggling to improve their comprehension often must stop at the end of much smaller chunks to induce comprehension (e.g., at the end of each paragraph or several times within a paragraph). Such frequent stops to check comprehension may feel unnatural and inefficient to adults but nevertheless may be the "best" approach for immature readers.

3. The steps of an effective strategy cue students to use specific cognitive strategies. Effective learning strategies often are "strategy systems" incorporating many cognitive strategies such as activating background knowledge, generating questions, summarizing, imaging, and so forth. A number of powerful cognitive strategies can be used to enhance learning and performance. Some of them are used primarily for motivational purposes; others are used for processing information effectively. Cognitive strategies for motivation include: establishing a purpose, setting goals, using self-affirmation statements, using self-coping statements, using self-reinforcement monitoring progress toward goals.

Cognitive strategies for processing information include: activating background knowledge, predicting, self-questioning, visualizing, paraphrasing/summarizing, prioritizing, comparing/linking new information to background knowledge, creating analogies, looking for patterns of information, organizing information into patterns.

4. The steps of an effective strategy cue students to use metacognition. Reflection on and evaluation of the way a task is being approached and accom-

plished are important components of the problem-solving process. Therefore, these behaviors (e.g., self-questioning, goal setting, checking, reviewing, self-monitoring) should be included in the steps of the strategy when they are important in completing a task. An effective strategy cues students to use these behaviors at optimal times, and effective strategy instruction explains them to students.

5. The steps of an effective strategy cue students to select and use appropriate procedures, skills, or rules. Strategies guide students in selecting procedures, skills, or rules that are most appropriate for meeting the demands of a task. An effective strategy provides a guide for students as to which resources to apply and where. The strategy should name the appropriate procedure or skill and cue students to employ it at the optimal time during the problem-solving process.

6. The steps of an effective strategy cue students to take some type of overt action. A strategy must cue both mental and physical actions. An absence of physical actions makes it difficult to evaluate application of the strategy and to monitor progress toward meeting the setting demand. When teaching the strategy, teachers need to ensure that all physical actions are supported by a clear explanation of the associated mental actions that need to take place. Information about the mental actions provides guidance related to decisions about the best way to meet the demand. For example, if a step in a paragraph writing strategy you are teaching cues students to outline their ideas before writing their first draft, you will need to provide guidance on how to make decisions about what information should be included in the outline.

7. A strategy must be performed in a relatively short time. Otherwise, the self-instruction process involved in performing it will be undermined, rendering the process ineffective. Strategies designed to address tasks that extend over a period of time (e.g., 1 or 2 days) tend to suffer from insufficient analysis of the task or demand. Strategies that attempt to address such tasks (e.g., homework completion) must take into consideration that several strategies are probably involved, not just one.

8. An effective strategy does not contain unnecessary steps or explanations. The number of steps and the amount of explanation should be no more than what is needed to enable the student to learn the strategy and meet the setting demand. Unnecessary steps or trivial information increases the amount of information to be learned and remembered about a strategy. Thus, steps such as "open your book" should not be included in an effective strategy.

Design Features

The design features of the strategy concern the way the strategy is packaged for presentation to the student. An effective strategy design organizes and arranges the content of the strategy for optimal learning and use. Although an effective strategy may not share all the design features listed below, students with disabilities tend to more readily learn and use strategies that incorporate several of these design features.

Design Features

- Use a remembering system.
- Use simple and brief wording.
- Begin with "action words."
- Use seven or fewer steps.
- Use words that are uncomplicated and familiar to students.

1. The steps of an effective strategy are encapsulated with a remembering system. Each step in a strategy always has two aspects. The first concerns the actions the step is designed to facilitate, or the content of the strategy. When teaching the strategy, this first aspect is addressed through a full explanation of all the guidelines, cues, rationales, procedures, rules, processes and exceptions that are important to performing the strategy successfully. To use the strategy successfully, students must remember this information.

The second aspect of each step consists of key action words learned in association with the step. These action words serve as the remembering system of the strategy because they trigger the appropriate associations or explanations related to successful performance of the strategy.

Because the content of the strategy can be quite extensive and many individuals need assistance in learning and remembering information, the design of the strategy must facilitate the memorization process. The content of an effective strategy is organized to facilitate ease of remembering and many strategies utilize a mnemonic device so as to facilitate memorization and recall of the strategy steps.

When a first-letter mnemonic device is used as a remembering system, effective strategies use a mnemonic word whose meaning closely parallels the overall strategic process the strategy is designed to address. The first letters of the paraphrasing strategy, R-A-P illustrate this concept. They spell the word "rap," that is a style of music highlighting self-expression with words. Although students with disabilities have developed and successfully used many strategies without this consideration, this feature can make the mnemonic easier to learn and remember for many students.

2. The wording of each step in the remembering system is simple and brief. The steps in an effective strategy do not contain unnecessary words. Each step contains only a few action words to facilitate a direct association to the cognitive and physical actions that are necessary to perform the step and that have been presented to the individual already as part of the full explanation of that strategy.

3. Each step of the remembering system begins with an "action word." To promote an active approach to the task, the action word is usually a verb or a key word related to the action the step is designed to cue. Words such as "if," "then," and "materials" have less power than verbs such as "preview," "ask," and "summarize."

4. An effective strategy utilizes seven or fewer steps in the remembering system. Naturally, as more steps are included in the strategy, the memory load increases. Conversely, too few steps can limit the effectiveness of the strategy, more steps are indeed needed to cue important actions. Effective remembering systems seek a balance between too many and too few steps.

Some tasks require a relatively sophisticated approach involving more than seven steps. Effective strategies address this issue by embedding a substrategy, or mini-strategy, within a general set of steps. For example, a strategy may contain five steps. However, the second step cues students to perform a short three-step substrategy before going on to the third step of the general strategy.

5. The strategy steps are communicated using words that are uncomplicated and familiar to students. Effective strategies are designed so the wording to convey the strategy steps is readily understandable to students. At times, however, a remembering system employs words that convey powerful actions that may be new to the student and for which no suitable, more familiar words can be substituted without making a strategy step excessively long.

Usefulness Features

Naturally, a strategy should be useful for enabling students to realize personal goals that are relevant to their needs. The usefulness features generally relate the strategy's potential use and transferability across

Usefulness Features

- Address a common but important problem that students are encountering in their settings.
- Address demands that are encountered frequently over an extended time.
- Can be applied across a variety of settings, situation and contexts.

materials, settings, situations and people. Most strategies that are effective meet the following criteria:

1. The most effective strategies address a common but important problem that students are encountering in their settings. Strategies that are useful immediately and whose benefits are apparent immediately tend to be learned and generalized more quickly than strategies that seem less useful from students' perspectives. Thus, the problem the strategy is designed to address and what students perceive as problems in their environments must match.

Some teachers target a strategy for instruction in anticipation of future problems their students will encounter. For example, although test-taking may not be a particularly pressing demand in some sixth-grade settings, some sixth-grade teachers might choose to introduce a test-taking strategy in anticipation of the testing demands their students will encounter in junior high school. Although preparing students for future problems may seem prudent, our experience has shown that unless LD students perceive an immediate need for the strategy, their commitment to learn it, as well as their subsequent generalization of it, will be minimal.

In addition, effective learning of the strategy requires that students have ample opportunities to experiment with its utility on real problems. If these opportunities are not provided, the strategy often has to be retaught when students enter settings where it is needed.

2. Effective strategies address demands that are encountered frequently over an extended time. Because strategy instruction is intensive and extensive, the relative cost-benefit ratio plays an important role in the effectiveness of strategies. Teaching a strategy for meeting the setting demands that are encountered only infrequently (e.g., once -a- semester book reports) will have considerably less impact on students' overall success than instruction in strategies that target setting demands that students encounter frequently (e.g., daily or weekly).

The more opportunities students have to apply the strategy, the more readily students will perceive its benefits, attribute success at the tasks to using a more effective strategy, and habitualize its use. Although the strategy has to meet current demands, it should also be powerful enough to have long-term utility and benefit the student in the near future as well as into adulthood.

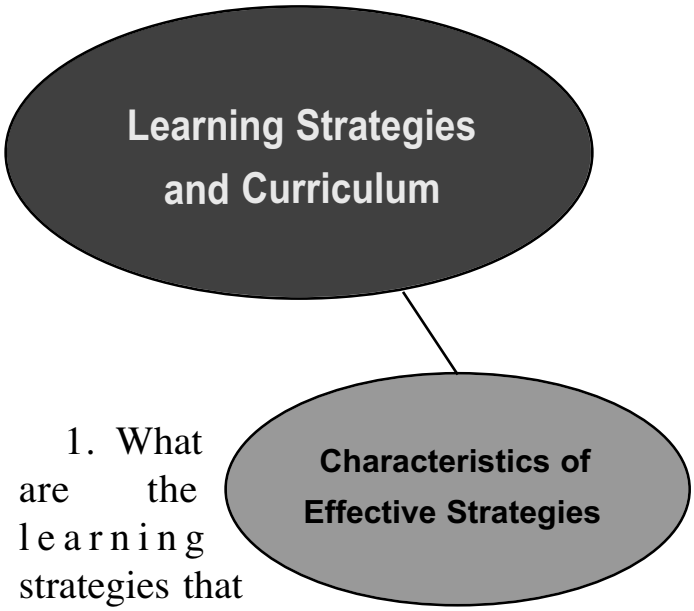
3. Effective strategies can be applied across a variety of settings, situations and contexts. Strategies that are designed to meet highly unique and specific situations are often the most powerful in these specific contexts (e.g., a test-taking strategy to be used to address a specific teacher's highly unusual approach to giving tests). However, these types of strate-

gies usually have limited value in other situations and settings. Thus, effective strategies are specific enough to enable students to meet task demands successfully, but general enough to be generalizable across settings and situations. For example, an effective test-taking strategy is designed to be effective when used when taking the types of tests commonly encountered in science, social studies, geography or health classes.

Review

What have you learned from this resource material? You know that there are research-validated learning strategies that are part of the Strategic Instruction Model (SIM) of the University of Kansas-Center for Research on Learning. The Learning Strategies Curriculum includes strategies related to reading, to storing and remembering information, to expressing information and to demonstrating competence to social interaction and to mathematics. You have the opportunity to learn three of these strategies at this professional development academy: the Paraphrasing Strategy, the Visual Imagery Strategy and the Self-Questioning Strategy. All the strategies are taught with the same eight-stage instructional procedure and were originally designed for students who struggle academically. Research has found specific content, design and usefulness features to be characteristic of good learning strategies. These features have been incorporated in the design of the SIM Learning Strategies.

After reviewing these materials you should be able to answer the following questions:



1. What are the learning strategies that are part of the Learning Strategies Curriculum and for whom have they been developed?
2. What evidence exists that learning strategies are effective in promoting learning and performance?
3. What are the characteristics of good learning strategies?

If you have been viewing the sections of the Resource Notebook in the order in which they are organized, you have now completed your study of these background materials. You are now ready to learn a specific reading comprehension strategy. Either proceed to the Strategy Workshops or go back to any sections of the Resource Notebook you may have missed or which you would like a review.