

# Florida Center for Reading Research

Strategic Instruction Model (SIM) and Content Literacy Continuum (CLC)

## What are the Strategic Instruction Model (SIM) and Content Literacy Continuum (CLC)?

The University of Kansas Center for Research on Learning (KU-CRL) has developed a comprehensive set of instruction and intervention procedures that, when combined, comprise an array of strategies and routines designed to improve the content literacy of students in grades 4-12. The *Strategic Instruction Model*, or *SIM* (Deshler, Schumaker, Lenz, Bulgren, Hock, Knight, & Ehren, 2002) is an umbrella term that embraces a model of teacher-focused (Content Enhancement) and student-focused interventions (Learning Strategies), and other support pieces. This model embodies more than 28 years of research by the KU-CRL staff and associates that has been driven by a central concern for adolescents with disabilities and other low-achieving students who are at-risk for school failure due to the difficulty they experience with the challenging nature of content-area classes. The instructional approach associated with the *SIM* is intended to offer students a key to unlocking text and nurturing understanding. The ultimate goal associated with the *SIM* is to enable academically diverse groups of students to become independent and strategic learners.

All components of the *SIM* (Deshler et al., 2002) were designed and researched according to the following set of standards: 1) "An instructional procedure must be palatable for teachers." 2) "The procedure must be sufficiently powerful to have an effect on low-achieving students." 3) "The procedure must result in statistically significant gains for students." 4) "The procedure must result in socially significant gains for students." 5) "The degree to which students will maintain a skill or strategy they have been taught and generalize it for use in other settings is important in determining whether the instructional procedure is successful and has merit" (p. 10).

Among the essential components of the *SIM* is a set of routines called the teacher-focused interventions, or, the Content Enhancement Routines. These instructional routines were designed with the intent to foster effective teaching by helping teachers "think about, adapt, and present their critical content" so that they might respond more adequately to the diverse needs of students who are at-risk academically. The Content Enhancement Routines are comprised of methods that focus on extracting the most important information students need to learn from their content-area texts. For a specific text reading for example, the teacher chooses the concepts central to understanding; then, through the sequence of steps in the routine, the concept relationships are made explicit to the students. This approach enables teachers to enhance student learning by facilitating their ability to organize, understand and remember the most critical information (Schumaker, Deshler, Mcknight, 2002). Each routine is highly structured and concentrates on a specific aspect of the teaching process. All routines are comprised of a standard set of instructional procedures that involve three parts: a visual or graphic organizer, a set of steps called The Linking Steps, and a process called Cue-Do-Review within which The Linking Steps are embedded. Cue-Do-Review refers to the sequence and structure used to teach the routine. Successful implementation of the routines is dependent upon teaching them explicitly and consistently over time, integrating them with other

routines throughout the curriculum, and ensuring active student engagement during the process.

### Content Enhancement Routines

Planning and Leading Learning	Explaining Text, Topics, and Details	Teaching Concepts	Increasing Student Performance
Course Organizer	Clarifying	Concept Mastery	Recall Enhancement
Unit Organizer	Framing	Concept Anchoring	Question Exploration
Lesson Organizer	Survey	Concept Comparison	Quality Assignment
	Vocabulary LINCing		

Another major component of the *SIM* is the Learning Strategies Curriculum, designed to provide the skills and strategies students need to learn the content so that they may become independent learners and use these skills in a variety of settings. The Learning Strategies Curriculum consists of three strands: the Acquisition Strand, the Storage Strand, and the Expression and Demonstration of Competence Strand. Each strand is comprised of instructional programs for several task-specific strategies. Common to all these instructional programs is a highly detailed eight-stage instructional sequence (Ellis, Deshler, Lenz, Schumaker, & Clark, 1991) This sequence includes pretesting and posttesting, describing and modeling the strategy, ensuring that students practice using the strategy in a variety of materials, and teaching the students to generalize and maintain their use of the strategy over time.

Found in the Acquisition Strand of the Learning Strategies Curriculum are the following strategies that pertain specifically to reading: the Word Identification Strategy, the Paraphrasing Strategy, the Self-Questioning Strategy, the Visual Imagery Strategy, and the Multipass Strategy. In the Storage Strand, there is the LINCING Vocabulary Strategy. Each strategy is comprised of several steps. Each step is either a cognitive or overt behavior that a student must use to complete a given academic task. To help students to remember the steps of each strategy, a mnemonic device has been designed. Each letter of the mnemonic device is associated with the first letter in each step of the strategy. For example, the Word Identification Strategy enables students to decode known and unknown words as they read by identifying prefixes, suffixes, and root words. The mnemonic device used for word identification is DISSECT which stands for: Discover the context, Isolate the prefix, Separate the suffix, Say the stem, Examine the stem, Check with someone, and Try the dictionary (Lenz, Schumaker, Deshler, & Beals, 1984). The Paraphrasing Strategy helps students to identify the main idea and details of a short passage and then rephrase that information. The steps of this strategy are linked to the mnemonic device RAP: Read a paragraph, Ask yourself, "What are the main ideas and details?", and Put it in your own words (Schumaker, Denton, & Deshler, 1984). The Self-Questioning Strategy enables students to think of questions, predict answers to those questions, and then search for the answers as they read. The mnemonic device for the Self-questioning Strategy is ASK IT: Attend to the clues, Say some questions, Keep predictions in mind, Identify the answers, and Talk about the answers (Schumaker, Deshler, Nolan, & Alley, 1994). The Visual Imagery Strategy enables students to make pictures or

movies in their minds as they read each sentence of a passage. To remember the steps of this strategy, students use the mnemonic device SCENE: Search for picture words, Create or change the scene, Enter lots of details, Name the parts, and Evaluate your picture (Schumaker, Deshler, Zemitzch, & Warner, 1993). The Multipass Strategy (Schumaker, Deshler, Alley, Warner, & Denton, 1982) enables students to make three “passes” through a textbook chapter in order to extract key information from the chapter and learn it. During the first pass, Survey, the student spends about 3 minutes getting an overview of the chapter by reading and paraphrasing the Title of the chapter, the Relationship of the chapter to other chapters and the unit, the chapter Introduction, the Main headings in the chapter, and the chapter Summary. During the second pass, Sort-out, the student turns each heading into a question and skims the section to answer the question. Study cards are also made for key terms highlighted in the text. During the third pass, Size-up, the student reads and orally answers chapter questions and tests him/herself over information on study cards. Finally, the LINC Vocabulary Strategy is used by students to learn the meaning of new words with the mnemonic device LINC: List the parts, Identify a reminding word, Note a LINCing story, Create a LINCing picture, and Self-test (Ellis, 2000).

### Learning Strategies Curriculum

Acquisition	Storage	Expression of Competence
Word Identification	First-Letter Mnemonic	Sentence Writing
Paraphrasing	Paired Associates	Paragraph Writing
Self-Questioning	Listening/Notetaking	Error Monitoring
Visual Imagery	LINCS Vocabulary	Theme Writing
Interpreting Visuals		Assignment Completion
Multipass		Test-Taking

Assessment is an integral part of the eight-stage instructional process for each strategy. Pretests and posttests for the Self-Questioning, Visual Imagery, and Paraphrasing Strategies require students to read 3- to 5-paragraph passages from books used in the student’s class that have not been previously read. These passages are written at the student’s grade level. Other tests are included for specific strategies. For example, for the Word Identification Strategy pretest, a prefix/suffix test found in the manual is given. For this test, students are required to identify the prefixes and suffixes in supplied words. Next, students read aloud a grade-level passage containing about 400 words and take a comprehension test over the passage. Detailed instructions are included for test administration and scoring in all manuals.

A separate teacher’s manual or guidebook exists for each strategy in the Learning Strategy Curriculum and for each routine in the Content Enhancement Series. The manuals are well-organized, highly detailed, and provide many of the materials required for teaching a given strategy or presenting a given routine. Specific information about other materials and books needed for instruction can be found in the appendix of each manual.

### The Content Literacy Continuum

The considerable scope of the *SIM* is organized into a system of delivery called *The Content Literacy Continuum (CLC)*. This system is designed to respond to the

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literacy needs of a particular school in a manner that is comprehensive and sustainable. Content literacy in this context refers to the listening, speaking, reading, and writing skills necessary for academic learning (Lenz, 2003). Once a school decides to use the *SIM* and *The Content Literacy Continuum* as its means of school improvement, it enters into a 3-4 year process. The *SIM* Implementation Team is an experienced group of professionals in school change who work with a school's teachers and administrators to orchestrate and integrate *SIM* across the entire curriculum. Some of the key objectives associated with the *CLC* are to ensure mastery of critical content, teach students when and how to use strategies, develop intensive literacy course options and services, and prepare other professionals to provide clinical services that support school literacy.

The *SIM* and *CLC* were designed to accommodate the learning of critical content for all students in a school, regardless of their level of literacy competence. Therefore, *CLC* offers a cascade of support with 5 levels of intensity designed to respond to these students.

- Level 1: Teachers in general education classrooms try to ensure mastery of critical content by use of the Content Enhancement Routines.
- Level 2: Teachers directly teach and embed strategy instruction of selected strategies in the content area classes.
- Level 3: Students experiencing difficulty receive explicit, intensive instruction in learning strategies by support personnel in the general classroom, a pull-out program, or through another course.
- Level 4: Students receive decoding and language instruction by Reading Specialists and Special Education teachers, often using programs such as Corrective Reading or Language! These teachers assist the content teachers in making modifications for struggling readers.
- Level 5: Speech-language pathologists as well as other support personnel, deliver 1-on-1 intensive instruction in a clinical setting. They assist the content teachers in making modifications for students with struggling readers.

### How do the Strategic Intervention Model (SIM) and Content Literacy Continuum (CLC) align with Current Reading Research?

The Report of the National Reading Panel (2000) cites evidence from research studies that indicates the positive effects of cognitive strategy instruction for increasing reading comprehension. Strategies that actively engage students and stimulate an awareness of their own thinking processes contribute to improved understanding of difficult text. Such strategies include questioning, concept mapping, summarization, and comprehension monitoring. In addition, the Rand Study (2002) states that comprehension is increased when teachers develop a strong link with strategy instruction and the content being taught. As teachers help students make connections between their personal lives and what they are reading, understanding is gained. All of these aspects of comprehension building are found within the reading related learning strategies in the Learning Strategies Curriculum and the Content Enhancement Routines of the *SIM* and *CLC*.

Woven throughout all aspects of the Learning Strategies Curriculum and the Content Enhancement Series are several pedagogical features that are helpful for students who struggle with acquiring and remembering information. Instruction is

sequential, explicit, and highly interactive. Teachers model strategies, scaffold learning, and provide guided practice and feedback. Instruction occurs frequently, preferably daily, over an extended period of time. This instructional approach tends to advance students' ability to learn to an automatic level, which in turn, facilitates the learning of subject-area information to mastery. The use of visual and verbal cues or prompts is intended to assist students in maintaining mastery and generalizing strategy use to other settings.

The *SIM* and *CLC* address the many factors that influence content literacy. This model is not confined however, to content acquisition, but rather, it includes the competencies necessary to enable content acquisition. The developers emphasize that there is not one strategy that will be the most effective. Rather, they emphasize that teachers need to have an entire array of strategies, such as those offered in the Learning Strategies Curriculum which allows them the flexibility of adapting instruction in response to the varying needs of their students. The comprehensive nature of the *SIM* and *CLC* is an approach to literacy that involves systemic change. Although such a process requires time, significant effort, and sustained support, the *SIM* and *CLC* offer schools a possibility for meaningful gains in literacy development.

The importance of extensive teacher preparation in regard to effective strategy instruction is emphasized in the Report of the National Reading Panel (2000). This is accomplished through professional development that figures prominently in the *SIM* and *CLC*. The developers of the *SIM* and *CLC* underscore the necessity to view professional development as a continuous process for teachers and administrators. There are at least four phases to the *SIM* professional development process: initiating or learning about the strategies and how they align with instructional needs in a given school; implementing the strategy instruction in such a way as to include explanations, modeling, practice, and feedback; refining and customizing the instruction through coaching and team meetings; and sustaining and maintaining the use of the various components. The initial training must be provided by a certified *SIM* professional developer who has been trained by staff or associates of the University of Kansas Center for Research. In order to ensure successful implementation of the entire model, administrators are considered an important part of the professional development plan since strong, supportive leadership is required for fidelity of implementation and sustained implementation. Finally, professional development services for teachers and specialists will vary depending on which level of support they are involved with on the Content Literacy Continuum.

## Research Support for Reading Components of the Strategic Intervention Model (SIM)

The University of Kansas Center for Research on Learning (KU-CRL) has developed a multifaceted approach called the *SIM*. The KU-CRL has conducted research on several strategies examined in this report: the Word Identification Strategy, the Self-Questioning Strategy, the Visual Imagery Strategy, the Paraphrasing Strategy, and the Vocabulary Learning Strategy. Studies were done to determine if students could learn the strategies and to assess the effects of the strategy on a variety of reading skills such as decoding and reading comprehension.

In 1990, the effects of the Word Identification Strategy (Lenz & Hughes, 1990) were studied in a middle school and a high school in Florida. The middle school intervention was implemented in three different language arts classes. In the high school setting, implementation of strategy instruction was in three different 9th grade

English classes. In both settings, the classes were designed for students with learning disabilities. Twelve students from grades 7-9 were randomly selected for this study, out of a total of twenty-one students who met the criteria for selection. Strategy instruction took place in small groups ranging from 3-7 students. Two teachers delivered the 7-step instructional sequence approximately 3 times per week for 20-25 minutes during a 6-week period.

A multiple-baseline across subjects design was used for this study and repeated four times, with 3 students in each repetition of the design. Three oral reading measures were used in the study. For two of the measures, students were required to read aloud 400-word passages taken from the Timed Readings Series (Spargo, Williston, & Browning, 1980) at the students' reading level and at their grade level. For the third measure, they were required to read aloud a passage from their science textbook. The percentage of words read correctly was determined for each passage. Results showed that all students met the criterion decoding mastery (99% of the words correctly decoded) in passages written at their ability level and at their grade level after instruction in the strategy. Students generalized their use of the strategy across novel reading passages at both levels. The positive effect of strategy use was maintained for 5 weeks following instruction. The two comprehension measures were also from the *Timed Reading Series*, one for passages written at the students' reading level and one at the students' grade level. The effects of the students' use of the strategy on comprehension however, were inconsistent among the students, indicating that for some students, the Word Identification Strategy was effective in improving word-reading ability but not their comprehension.

The same Word Identification Strategy intervention (Woodruff, Schumaker, & Deshler, 2002) was implemented with students entering the 9<sup>th</sup> grade in two Northeastern high schools in a later study. Students were selected for the study if their decoding score was one or more grades below the 9<sup>th</sup> grade level as determined by the Slosson Diagnostic Battery. Students in School A served as the experimental group (n=62) while students in School B served as the comparison group (n=62). Due to the inability to randomly assign students to instructional condition, students in School A were matched with students in School B according to grade level, age, sex, and race with 53% of the students from School A and 47% of the students from School B receiving free and reduced lunch. Eleven students from School A had a learning disability. Students in the study had grade-equivalent decoding scores ranging from 2.7-8.5 for School A and 2.7-8.1 for School B. Students in the experimental group were taken out of their English classes and received one hour of daily instruction in the use of the Word Identification Strategy in groups of 4-6 students for 4-8 weeks. Students in the comparison group remained in English class and received their typical reading instruction. Results using Analysis of Covariance to control for pretest differences between the groups showed that students from School A achieved significantly higher scores on the decoding subtest of the Slosson Diagnostic Battery than did students from school B ( $p < .001$ ). The effect size for this contrast was .69. . The results cannot necessarily be attributed solely to the intervention however, since scores of the two groups were not well matched at pre-test, and because school level effects on student's performance cannot be ruled out.. Regarding reading comprehension outcomes, a study was conducted to determine the effects of teaching six students the Self-Questioning Strategy and the Visual Imagery Strategy (Clark, Deshler, Schumaker, Alley, & Warner, 1984). The participants were students from grades 8, 9, and 11 who were receiving instruction in a program for students with learning disabilities. A multiple-probe across-strategies experimental design was used

for each student in the study. Results indicated that all of the students mastered using the two strategies in relation to ability-level passages, and five students mastered using them in relation to grade-level passages. After a relatively short period of instruction, 5-7 hours, there was a marked increase in students' comprehension scores. However, a conclusive statement about the results of the intervention is not possible. During baseline of the Visual Imagery Strategy, only one probe for each of the measures was taken before initiation of the strategy, and none of the measures were at zero. Had the probes been at zero however, this would have been more acceptable for determining a functional relationship between the dependent and independent variables.

A study to evaluate whether instruction in the Paraphrasing Strategy (Schumaker, & Deshler, 1992) could affect students' comprehension and retention of grade level reading material was implemented with six students with learning disabilities in grades 10-12. A multiple baseline across students design was used and students were tested before and after instruction with ability-level and grade-level passages. On ability-level measures of comprehension and accurate paraphrasing, subjects appeared to show some growth. However, the results do not conclusively demonstrate the efficacy of the intervention since data was available for only 3 of the 6 students. Additionally, the lack of a stable baseline for one of the students on grade-level comprehension measures renders it impossible to establish a functional relationship for this student.

Another study (Beals, 1983) examined the effects of instruction in two reading comprehension strategies: the Self-Questioning Strategy and the Paraphrasing Strategy. The purpose of the study was to determine if students with learning disabilities could learn strategies effectively within an inclusive large-group setting. Students in two 9<sup>th</sup> grade English classes participated in this study. Specifically targeted for the multiple-baseline across-strategies design were 3 students with disabilities, 3 high-achieving students, and 3 low-achieving students in each class. Clear and stable baselines were established for paraphrasing and self-questioning measures, and students showed growth in strategy use and on comprehension measures once the intervention had begun. All of the targeted low-achieving students and students with disabilities made substantial gains in both use of targeted strategies and comprehension measures, whereas the high achieving students who began with higher scores made less notable gains.

A later study was conducted by Glaeser (1998) in three elementary, multiage, general education classrooms and it examined the effects of an inclusive model of reading instruction which entailed instruction in three reading comprehension strategies: Visual Imagery, Self-Questioning, and Paraphrasing. Two of the classrooms were experimental and one was the comparison classroom. Strategy instruction occurred over the course of the school year during social studies class. A multiple-baseline across-subjects design was used to measure the effects of instruction on the students with reading disabilities, as well as other students in the classes. At pretest, the class means were equivalent on reading comprehension, use of visual imagery, and self-questioning, but not on paraphrasing. Several replications of the multiple-baseline design showed that students with reading disabilities made gains in using the visual imagery, self-questioning, and paraphrasing strategies after receiving the instruction. Additionally, the posttest scores of students in the experimental classes showed a significant increase when compared to their pretest scores on utilization of the three strategies, whereas students in the comparison class made no significant gains on strategy utilization. No significant differences from pretest to posttest were

found for the group-administered reading comprehension test, the TORC-3, for either of the experimental classes. Since only one student from the comparison class took this assessment, no comparison was possible.

A middle school in a large, Midwestern, urban area was the site of another study during the 1996-1997 academic year (Seybert, 1998). The purpose of the study was to develop and evaluate the effects of an inclusive, intensive model of reading strategy instruction that would serve as an alternative to traditional reading instruction for at-risk students and students with learning disabilities in secondary general education classrooms. This model included multidisciplinary teacher teams embedding instruction in a variety of reading strategies (the Vocabulary Learning Strategy, the Word Identification Strategy, and the Self-Questioning Strategy) in the content curriculum. The intent was for students to master this package of strategies so they could use and combine strategies as needed to learn vocabulary, decode, and understand written passages. Participating in the study and representative of the district's overall demographic characteristics were a total of 234 sixth and seventh grade students, 164 students in the intervention group and 70 students in the comparison group. From the total student sample, a subgroup of low-achieving (LA) students and students with learning disabilities (LD) was targeted to determine the appropriateness of such a model for these students within the general education classroom.

A quasi-experimental, pretest-posttest comparison-group design was used to determine the effects of the packaged strategy instruction on reading achievement in this study. Reading achievement scores for all students were determined with the Metropolitan Achievement Test, 7<sup>th</sup> Edition (MAT-7, 1993) Additionally, students' knowledge and performance of the three reading strategies were measured using a variety of strategy-knowledge and strategy-use tests associated with each strategy. Despite the fact that students performed significantly better on measures of the individual strategies, on a standard measure of reading achievement, the MAT-7, there were no significant differences at posttesting for the total intervention samples or for the subgroups, suggesting that the use of these strategies did not generalize to produce improvements in reading comprehension.

In summary, the KU-CRL has developed several strategies, which are collectively referred to as the Strategic Intervention Model, designed to help students with learning disabilities and other low achieving students learn to read more effectively. The body of literature submitted for review included studies examining the utilization and reading outcomes of five separate strategies. These were: the Word Identification Strategy, the Self-Questioning Strategy, the Visual Imagery Strategy, the Paraphrasing Strategy, and the Vocabulary Learning Strategy. Together these strategies represent a broad-based approach to teaching a variety of word reading and comprehension strategies.

Students who served as research participants in the KU-CRL studies were taught a variety of steps to utilize the different strategies. In every study, evidence is provided that the research participants were able to learn the steps at a high level of proficiency and implement the strategies accurately. The KU-CRL research has provided systematic replications of student acquisition and utilization of strategy steps across a wide range of different skills. It is noteworthy that research by the KU-CRL group has demonstrated that students with learning disabilities and other low achieving students can learn to utilize the various strategies in the model. The research on how strategy acquisition and utilization impacts reading outcome measures is less highly developed, however. More evidence is needed to establish the

efficacy of the SIM strategies for improving the myriad skills comprising reading comprehension. Studies reviewed here found inconsistent results (Lenz & Hughes, 1990) of the impact of strategy use on reading comprehension or found no differences in reading comprehension between students who learned a strategy and those who did not use a strategy (Glaeser, 1998). Given these inconclusive results, more research that specifically examines the efficacy of the strategy utilization on a variety of comprehension skills is needed. It would be especially helpful to test the efficacy of strategy use on well-established standardized outcome measures and/or broader measures of reading comprehension, such as those used by states to establish accountability for reading growth. As of yet, there are no studies where students have been randomly assigned to groups, and there is no efficacy study of the program as a whole.

## Strengths & Weaknesses

Strengths of the *Strategic Intervention Model (SIM) and Content Literacy Continuum (CLC)*

- This is a comprehensive approach to improving literacy gains.
- Instruction is explicit, systematic, scaffolded, and provides modeling, guided practice, corrective feedback, and independent practice.
- *SIM* and *CLC* provide an opportunity for low-achieving adolescents to experience success in the general classroom.
- Both Content Enhancement Routines and student Learning Strategies actively engage the student.
- The *SIM* strategies are designed to help students become independent learners rather than relying on teacher mediation.
- The generalization of strategy use is integrated into the instructional stages associated with each strategy.
- Teachers use strategy instruction across the curriculum, therefore offering students consistency and multiple opportunities to practice, which in turn reinforces strategy use.
- Teachers learn several strategies, which allow them more flexibility when responding to the varying needs of their students.
- Instructional manuals are organized, clear, and highly detailed.
- Assessment drives instruction.
- This program is designed specifically for adolescents.

Weaknesses of the *Strategic Intervention Model and Content Literacy Continuum*:

- None were noted.

## Which Florida districts have schools that implement the Strategic Intervention Model and Content Literacy Continuum?

This information was not provided.

## For More Information

<http://www.ku-crl.org/>

Additional information and research pertaining specifically to the Content Enhancement Routines may be accessed at the above website address.

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