David C. Caverly
Sheila A. Nicholson
Richard Radcliffe

The Effectiveness of Strategic Reading Instruction for College Developmental Readers

Two studies examined the short- and long-term effects of teaching strategic reading to first-year college students in a stand-alone course. In study one, developmental readers (N = 36) learned PLAN, a strategic reading heuristic. Significant pretest-posttest growth was found using cognitive, metacognitive, and affective measures, though no gain was found on a measure of self-efficacy. Strategy transfer was found during the next semester according to self-report. In a second study of developmental readers over four years, a larger treatment group (N = 51) outperformed a control group (N = 78) on a standardized test and average grade in a reading-intensive history course. These developmental readers seemed to learn strategic reading skills that transferred to a future core curriculum course.

Success in college depends to a considerable degree upon students' ability to engage in strategic reading of extensive academic or informational text. Simpson and Nist (2000) reported that 85% of college learning requires careful reading. Extensive reading is also needed, as lower-division students often must understand 150-200 pages per week to meet sophisticated reading tasks in writing

research papers and preparing for tests at both the university (Burrell, Tao, Simpson, & Mendez-Berrueta, 1997) and community college level (Colarusso, 2000).

In 2000, 35.2% of all undergraduate students receiving financial aid (i.e., 5.8 million) were enrolled in developmental reading courses (Horn, Peter, & Rooney, 2002) and 11% of first-time, first-year college students nationwide (i.e., over 843,000 students) received some form of developmental reading instruction (Parsad & Lewis, 2003). Such students have difficulty discerning important from unimportant information; selecting, organizing, and interpreting across multiple texts; accessing a repertoire of effective reading strategies; managing executive control over underlying cognitive, metacognitive, and affective processes that are the foundation of these strategies; believing in their ability to control their success; and being motivated to read actively (Alexander & Murphy, 1999; Pressley, Yokoi, Van Meter, Van Etten, & Freebern, 1997; Simpson & Nist, 1997). In addition, their goals for reading may not match their instructors' goals, especially given the competing demands of work, families, social events, personal problems, and other courses (Barnett, 1996).

Unfortunately, research on students who enter college with reading problems has pointed to their lack of success, even after compensatory reading instruction. Bohr (1994) found low correlations between participation in developmental reading courses and grades in challenging college courses. Similarly, after following 2.45 million students from the high school class of 1982, Adelman (1996) found a negative correlation between amount of reading remediation and college graduation. In reviewing traditional, mandatory college remedial reading instruction, Maxwell (1997) found that students felt stigmatized and resentful. Maxwell also noted weaknesses in the remediation, such as skills taught in isolation and unrelated to college task demands, faculty untrained in teaching reading to adults, and lack of course or program evaluation.

Fortunately, research on cognitive, metacognitive, and affective processes has clarified the strategic nature of effective, skillful reading (Alexander & Jetton, 2000) and shown that it is fostered through quality instruction (Pressley, 2002). Models for teaching students to meet the demands of college reading include stand-alone developmental reading courses, linked courses, and learning center support. Researchers have called for studies of the effectiveness of these models that consider the theoretical foundation, that assess with multiple measures, and that evaluate the ability of students to transfer strategic reading skills to subsequent, authentic college tasks (Boylan, Bonham, White, & George, 2000; Simpson, 2002). Following those recommendations, we systemati-

cally evaluated the effectiveness of one model of developmental reading instruction, a stand-alone course on strategic reading. We looked at how the instruction aligned with current theory and research on strategic reading; assessed students along cognitive, metacognitive, and affective dimensions; and investigated whether students transferred strategic reading skills to future semesters—specifically, to a reading-intensive core academic course and to performance on a standardized reading test.

Background

In describing the nature of college strategic reading, a number of researchers have concluded that although a reading strategy may meet a reading task demand, no single strategy meets every task demand that students face (Anderson & Armbruster, 1984; Caverly, Orlando, & Mullen, 2000; Nist & Simpson, 2000). Researchers have begun to explore how these effective reading strategies can be adapted to meet the variety of task demands of academic literacy and also to determine how to develop student belief structures for using such strategies (Simpson & Nist, 2000).

Strategic Reading Processes

Strategic reading has been defined through several reviews of the research. Pressley and Afflerbach (1995) concluded that strategic readers use a finite set of cognitive and metacognitive processes including prediction, imaging, interpretation, comprehension monitoring, and summarization. Alexander and Jetton (2000) concurred, arguing that strategic, academic reading is procedural, purposeful, effortful, willful, essential, and facilitative. Nist and Simpson (2000) concluded that for college students, specific cognitive and metacognitive processes have been validated by research (e.g., question generation, text summarization, student-generated elaborations, and organizing strategies like mapping).

Simpson and Nist (2002) found that strategic college readers identified the professor's beliefs for learning in the course, orchestrated reading tactics to fit those beliefs, and adapted that orchestration as needed. Zimmerman (2002) added that college readers become self-regulated learners through three phases. First, students analyze tasks, set goals, strategically plan, and motivate themselves to value learning. Next, they monitor and adjust their strategies. Finally, they judge their success or failure against some standard, attribute that success or failure to their own actions, and develop a positive affect that increases motivation to be self-regulated in the future. They also reflect on the effectiveness of

their strategic application, attributing success or failure to it rather than to difficult material, hard instructors, or bad luck.

Teaching Strategic Reading

Teaching students to be strategic readers requires quality instruction and a substantial amount of time for learning (Nist & Simpson, 1990). Such instruction uses more-considerate text while students are novices in strategic reading and moves to less-considerate text as students develop strategic reading expertise (Alexander & Jetton, 2000). It begins with explicit instruction as a teacher models strategic reading through think-alouds, then employs guided practice where students apply strategies in authentic texts by constructing an understanding of what was modeled. Further, it requires independent practice, where students apply strategies in a variety of authentic situations, preferably embedded within a content course (Duffy, 2002). Students need to learn to be self-efficacious (Zimmerman, 2002) as they take on the responsibility for their own learning. Teaching all of this within a specific context or domain helps to develop conditional knowledge (Hattie, Biggs, & Purdie, 1996). Multiple assessments inform instruction and document growth in these cognitive, metacognitive, and affective processes as well as short- and long-term transfer (Simpson, 2002).

Instructional Effectiveness

Research on the effectiveness of this instruction at the college level is typically limited to the semester of instruction and assessed by only one or two measures. For example, in a stand-alone course, El-Hindi (1996) taught students to identify a purpose for reading, activate prior knowledge, make predictions about the text before reading; to self-question and monitor comprehension during reading; and to evaluate understanding and relate the text to prior knowledge after reading. She reported significant growth for the semester on a questionnaire assessing metacognition. Similarly, Doughty (1990) taught strategic reading as metacognitive awareness through discussion, charts for self-monitoring, critical reading through pictures, and memory devices and found pre-post program improvement for reading, according to student self-reports and standardized reading test scores. While students in both studies improved, transfer of these tactics beyond the intervention was not investigated.

Inconsistent results are reported for strategic reading taught as an algorithm, or a set of tactics connected into a step-by-step procedure, not taught for adaptation to changing contexts (Alexander & Jetton, 2000). In reviewing the research on a well-known strategic reading algorithm,

SQ3R (Survey, Question, Read, Recite, and Review; Robinson, 1970), Caverly and Orlando (1991) found evidence of improvement on broad measures of success, such as semester grade point average (GPA), but little evidence that this success was due to strategic reading. Similarly, Donley and Spires (1999) found that few students reported using another algorithm for strategic reading, PROR (Preread-Read-Organize-Review) during the semester following instruction. While students seem to be able to learn these algorithms and use them during the semester taught, there is little evidence that students indeed become more strategic readers in future college classes.

Some success has been found for teaching strategic reading as a heuristic—that is, as broad cognitive processes that can contribute to success when adapted to fit a variety of contexts (Alexander & Jetton, 2000). For example, Nist and Simpson (1990) taught a heuristic called PLAE (Preplan, List, Activate, and Evaluate) to developmental readers over four weeks and compared their performance to a comparable group of developmental readers who learned study skills. All students read and studied four college textbook chapters. Students who applied and adapted PLAE scored significantly higher on the teacher-made chapter tests than did the control group. Similarly, Caverly, Mandeville, and Nicholson (1995) taught a strategic reading heuristic called PLAN (Predict, Locate, Add, and Note) using college textbook chapters from classes in which students were enrolled as well as from classes in which they were not. Students in a stand-alone reading course who applied and then adapted PLAN scored higher on a standardized reading test and had greater retention over four semesters compared to developmental readers who chose not to take the reading course. However, this study did not report data or account for the many variables that can explain retention. Finally, Maloney (2003) taught strategic reading as a heuristic to students placed in a stand-alone reading course after failing a standardized reading test. She taught students to preview, annotate, self-question, and summarize authentic, college-level, narrative texts, from a critical literacy perspective. Nearly all of the students passed the standardized reading test on a subsequent retake, but there was no assessment of long-term transfer.

However, factors other than developmental reading instruction may account for student gains, an issue raised by Stallworth-Clark, Scott, and Nist (1996). They found that for a stand-alone developmental reading course, student performance on three dependent variables (developmental course grade, standardized reading test, and GPA in a reading-intensive course taken the next semester) was explained by cognitive aptitude (i.e., SAT Verbal and high school GPA), not by the strategic

reading instruction. They also looked at the developmental instructional approach (basic skills, strategy training, strategy training with skills, or whole language) and found that instructional approach impacted the developmental course grade, but did not predict student performance in a college, core-curriculum course.

Stand-alone vs. linked courses. Strategic reading instruction also has been examined when taught as a course linked to a challenging, core-academic course. For example, Simpson and Rush (2003) linked strategic reading instruction to three reading-intensive courses (biology, chemistry, and history). Students who completed a linked course earned higher grades than those who completed the course without linked support. Significant positive correlations were found between students' beliefs about reading and learning and their performance in one of the three courses (history), but not in the other two. However, this sample might be considered strong developmental reading students, as their mean SAT Verbal score ($M = 510$) was comparable to scores of all freshmen ($M = 525$).

In a comparison of linked and stand-alone courses, Stallworth-Clark, Nolen, Warkentin, and Scott (2000) examined total grade points and depth of engagement in strategic reading for three groups of students in a freshman level psychology course. One group ($N = 22$) enrolled in a stand-alone, developmental reading course in a semester before the psychology course, though no description of the content of the reading course was given. Another group ($N = 22$) learned strategic reading in a course linked to the psychology course. A control group ($N = 184$) of non-developmental students took the psychology course without taking a strategic reading course. Results showed significantly higher self-efficacy and systematic studying in the linked course compared to the stand-alone course, suggesting benefits for linked courses. Also, both the stand-alone and the linked course performed as well as the control group on the total grade points for the course supporting the benefits of either intervention. Yet, small sample sizes limit their findings.

Cox, Friesner, and Khayum (2003) compared the performance of students in a linked course with credit and grades to those enrolled in a stand-alone course without credit or grades. Students identified as weak in reading ability according to the standardized Degrees of Reading Power Test (DRP) were placed into one of three developmental courses: those who scored below 66 on the DRP were required to enroll in a stand-alone, non-credit, pass-fail reading course; those who scored 67-71 on the DRP had a choice to enroll in a credit, graded reading course, either stand-alone or linked with an Economics course (linked course). The researchers found a positive, significant relationship between successful reading course completion and long-term success (over four

academic years) as measured by credit-hour completion, cumulative GPA, and grades in math and English composition, core-curriculum courses. Unfortunately, they provided no description of the reading instruction interventions.

They also claimed those who completed the credit, graded reading courses with an A grade performed better than those who completed the non-credit, non-graded reading course. However, those with lowest DRP scores were placed into the non-credit course while the stronger readers had the option to enroll in the credit, graded course or the linked course. This sampling error makes untenable the conclusion that credit reading courses were better than non-credit courses.

Despite the problems typical of research on developmental instructional interventions (O'Hear & MacDonald, 1995), studies show that college students can learn strategic reading tactics, but the evidence of transfer beyond the intervention semester is inconsistent. For the strongest developmental students, linked courses have led to stronger beliefs about learning, self-efficacy, and study management, and to improved performance in reading intensive courses. However, little research has differentiated the performance of weaker developmental readers, who score significantly lower than their peers on more than one reading assessment.

We saw a need for systematic research on the effectiveness of strategic reading taught to weaker developmental readers in a stand-alone course, research that assessed with cognitive, metacognitive, and affective measures and examined the transfer of these strategies over several semesters in reading-intensive courses. The two investigations presented here report the effectiveness of strategic reading instruction by documenting student performance using multiple assessments as well as short- and long-term transfer. Specifically, we sought answers to two research questions.

Research question 1. Does strategic reading instruction in a stand-alone course contribute to reading performance among developmental college readers as measured by their (a) comprehension on a college reading task, (b) performance on a standardized reading test, (c) report of metacognitive awareness of strategies they choose to employ, (d) report of self-efficacy in reading, and (e) report of beliefs in strategic reading during the semester following instruction?

Research question 2. When compared to a control group, does this strategic reading performance for developmental college readers transfer beyond one semester as measured by their (a) performance on a standardized reading test and (b) grades in a reading-intensive college course?

Context of the Studies

The two investigations reported here examined the performance of developmental reading students at a large, state university in the Southwest over four academic years from fall semester 2000 through spring semester 2004. Since 1989, the university has offered a three-hour, institutional credit-only, developmental reading course for students who failed the reading subtest of the state-mandated basic skills test (TASP–Texas Academic Skills Program, now the THEA–Texas Higher Education Assessment; National Evaluation Systems, 2003). Students are required by state law to demonstrate reading competency by remaining in developmental reading until they pass the TASP reading subtest (TASP-Rdg), earn a credit grade in a developmental reading course, or earn an A or B grade in a "reading-intensive" course such as American History (on this campus HIST 1310). The university designated these courses as required, core curriculum course with an intensive reading load, where reading is necessary to succeed. During the time of this study, students were not allowed to enroll in more than 60 credits until the reading requirement was met (this has since been changed). Students who also failed writing or math subtests of this test were allowed to enroll in developmental writing or math classes and delay enrollment in the reading course, thus creating a natural control group.

From a population of all freshmen students who enrolled in the university over the four academic years ($N = 7661$), a sub-population ($N = 289$) was selected of those who failed the TASP-Rdg subtest and enrolled only as first semester freshmen during the fall semester (i.e., they did not transfer credits from another college, but started their college career at this university during the fall semester). To avoid confounding study results, transfer students and students who opted to delay developmental reading instruction were not included.

Study One

Participants

Sample 1 (see Table 1) comprised all students who enrolled in a developmental reading course during fall semester 2002 ($N = 36$). These "true" developmental reading students were defined by having failed the TASP-Rdg subtest (i.e., as having scored less than 230/300), and also by having scored less than 500 on the SAT Verbal [SATV] subtest or less than 20 on the ACT English [ACTE] subtest.

Table 1 shows that students in Sample One performed significantly lower than the university freshmen population as a whole, confirming their designation as "true" developmental reading students.

Table 2 reveals that the demographics of Sample One were decidedly

more diverse than the university as a whole. This diversity is typical of developmental education populations in general, particularly for those receiving financial aid (Horn et al., 2002).

Table 1
Standardized Reading Scores for Study One

	TASP-R			SATV			ACTE		
	N	M	SD	N	M	SD	N	M	SD
Sample One	33	202.3	28.4	27	400.3	70.8	17	15.6	3.6
University (02)	1004	257**	18	2638	516.0**	73.0	1375	21.0**	4.0

** $p < .000$

Table 2
Sample One Demographics

	Gender (%)		Ethnicity (%)					
	M	F	Anglo	Afro-Amer.	Hisp.	Asian	Amer. Indian	Inter-national
Sample One	50.0	50.0	47.0	28.0	19.0	3.0	0.0	3.0
University	57.0	43.0	72.0	5.0	18.0	2.0	1.0	2.0

To investigate whether students could learn strategic reading, a single group, pre-test, post-test study design was implemented in a stand-alone reading course during the fall 2002.

Study One Materials
The instruction utilized authentic instructional materials, chapters from college textbooks required in the core-curriculum courses that all students must eventually pass. These chapters were selected to meet instructional purposes by being considerate, less-than considerate, and inconsiderate (Alexander & Jetton, 2000). For example, when teaching students to recognize text structure, specific chapters were selected with explicit structure (i.e., considerate), less-than explicit structure (i.e., less-than considerate), and implicit structure (i.e., inconsiderate). To address some limitations of Donley and Spires (1999) or Stallworth et

al. (2000), we used considerate and less-than considerate text for modeling and guided practice during strategic reading instruction, but during independent practice, students applied strategic reading to textbook chapters for other courses in which they were enrolled.

Study One Assessment
To broadly evaluate growth in strategic reading (Simpson, 2002), we used multiple assessments in the form of cognitive, metacognitive, and affective measures administered during the developmental reading course as pretest and final test. (For this study, a control group was untenable, as the assessments were aligned to the course instruction.)

Cognitive measures. Two measures assessed students' ability to read strategically. The first was utilized to address Research Subquestion 1.1: *Was there significant growth in reading performance on a teacher-made Comprehension test from the beginning to the end of the semester?* We developed a Comprehension test for a ten-page chapter (4,298 words) from an online college textbook on ecology (Moyle, 2003), with permission from the author (P.B. Moyle, personal communication, September 16, 2002). The same test over the same chapter with the same instructions and grading protocol was administered 14 weeks later, at the end of the semester, as a final test in the course. On both testing dates students were told to study the chapter outside of class, using whatever reading strategies they believed appropriate. Each Comprehension test counted 5% of the final course grade. Before taking each test, students turned in their notes and the assigned chapter.

The Comprehension test consisted of 12 multiple-choice questions (four each of literal, interpretative, and application) that accounted for 60% of the score and one short-essay question that counted for 40% of the score. The short-essay was scored using a rubric that assessed students' discussion of the predominate text structure (10 points), the three major concepts presented in the text (15 points), and the supporting details (15 points). To limit examiner bias, a colleague and a doctoral student scored the answers without input from the course instructor. This Comprehension test provided an assessment of students' performance on a typical college-level, reading task—to study a chapter and prepare for a test over classroom material.

The second cognitive assessment of students' ability to read strategically was utilized to address Research Subquestion 1.2: *Was there significant growth in reading performance on a standardized test (TASP-Rdg) from before the course to a subsequent semester?* Students' performance on the TASP-Rdg subtest prior to taking the developmental reading course was compared to their re-testing scores after the course ended. The reading

subtest of the TASP consisted of seven passages of 300-750 words, similar to sections of college textbooks, with six multiple-choice questions for each passage. These questions measured students' ability to determine meanings of words and phrases; understand main ideas and supporting details; identify a writer's purpose, point of view, and intended meaning; analyze relationships among ideas; evaluate with critical reasoning skills; and apply study skills.

Metacognitive measure. A measure of students' metacognitive awareness was utilized to address Research Subquestion 1.3: *Was there significant growth in metacognitive awareness of strategic reading strategies from the beginning to the end of the semester?* To assess students' developing metacognitive knowledge of strategic reading, we created a checklist (hereafter Checklist). The Checklist of 30 effective reading strategy statements represented categories identified by Weinstein and Mayer (1985), including basic and complex rehearsal, elaboration, organization, and monitoring study reading strategies. Of the 30 strategies, 27 were considered effective strategic reading tactics (e.g., "I quizzed myself by thinking up and answering questions") while 3 were considered ineffective tactics (e.g., "I skipped parts I didn't understand"). The Checklist followed the Comprehension test in the pre- and post-assessments. Students were told to mark the strategies they used in preparing for the Comprehension test, either "Yes, I used it," or "No, I didn't use it." Checklist items were scored with one point for each effective strategy and zero points for each ineffective strategy, generating a possible total score of 27 points.

Affective measure. A measure of students' sense of self-efficacy after strategic reading instruction was utilized to address Research Subquestion 1.4: *Was there significant growth in self-efficacy scores from the beginning to the end of the semester?* To identify students' self-efficacy in their ability to strategically read, we adapted a survey (hereafter Survey) of 10 items from Scholz, Gutierrez-Dona, Sud, and Schwarzer (2002) into a 25-item scale. Additional items were added to measure students' perceptions about their attribution and persistence with a difficult task such as the Comprehension test. The final Survey consisted of 23 items considered positive (e.g., "I made a special effort to learn new things") and 2 considered negative (e.g., "I met with success because I was lucky"). Students rated each item on a 4-point Likert scale (i.e., "Not at all true," "Hardly true," "Moderately true," or "Exactly true").

Transfer measure. Lastly, an assessment of students' beliefs was utilized to address Research Subquestion 1.5: *Does belief in a strategic reading process transfer to the academic semester after the course?* An interview protocol (hereafter Interview) assessed students' perceptions

of strategies and the need for strategic reading. A group of 18 students from Sample One was contacted during the middle of spring semester, 2003, after their fall, 2002 enrollment in the developmental reading course. Students were selected through stratified random sampling by their level of participation and performance in the developmental reading course: high, average, and low performing. A doctoral student with strong communication skills conducted telephone interviews. She asked students to tell what they considered to be the most important concepts learned in the course, to discuss the PLAN strategy, whether they used strategic reading during the spring semester, and if so, how and what effects they attributed to it.

Study One Procedures

On the second class meeting, students were assigned a less-than considerate chapter from the college-level text to take home to study. They were asked to return the third class meeting to take multiple assessments of their understanding of this chapter. After completing the Comprehension test, they responded to the Checklist and to the Survey. Students' scores on these assessments were returned the fourth class period and discussed.

The semester-long instruction in strategic reading began with the fifth class period. First, students were taught tactics for being metacognitively aware before, during, and after reading (Wade & Reynolds, 1989): *task awareness* (what do the professor and/or course expect), *performance awareness* (how capable were they for meeting these tasks), *self-awareness* (how much they believed they controlled their reading performance; i.e., self-efficacy), and *strategy awareness* (what reading strategies they used that were effective and efficient and for which task demands). Next, students were taught tactics for activating prior knowledge when reading informational text. They were taught tactics to recognize ordination and relational macrostructures within informational text. Next, they were taught various rehearsal tactics for improving remembering of what was read. Then, students were taught to orchestrate all these tactics into a reading heuristic strategy called PLAN (Caverly, et al., 1995). (For an explanation of PLAN, see Appendix.) By midterm, after students demonstrated the ability to orchestrate PLAN within a variety of considerate and inconsiderate texts, instruction shifted to adapting the strategy to critical reading for both expository and narrative texts.

Instruction in the PLAN strategy was explicit and direct (Duffy, 2002). It began with instructor modeling of strategic reading within authentic, considerate text selected from textbooks in use in core-curriculum courses. Modeling included think-alouds that demonstrated

comprehending and metacognitive behaviors. Next, in small groups, students completed guided practice using the tactics in less-considerate and inconsiderate college-level texts, pausing frequently to discuss procedures, effectiveness, difficulties, and adaptations. Concurrent with instruction, practice, and discussion throughout the semester, students kept a weekly electronic journal in which they reflected upon applications, adaptations, and effects of PLAN towards the development of self-efficacy (Zimmerman, 2002). After demonstrating competence in the strategy through guided practice, students were required as independent practice to apply the strategy to reading assignments in their other college courses. This requirement provided opportunities for students to transfer cognitive and metacognitive knowledge to a variety of different contexts and domains (Hattie et al., 1996). In a linked course, strategies are applied to one course and its task demands. In this study, however, students were asked to apply strategies to task demands both in courses in which they were not enrolled (but would be) as well as courses in which they were currently enrolled. They were required to describe both in writing and in class discussions the reading task demands of these courses and the effectiveness of their application of strategic reading in these different environments. The assessments were given again at the end of the course.

Study One Results

To assess whether developmental students were able to become strategic readers, we explored the effectiveness of the instruction using the PLAN heuristic as measured by multiple assessments, including a reading comprehension test, a standardized reading test, a checklist of effective reading strategies, a survey of self-efficacy, and interviews during the following semester.

   Research subquestion 1.1: Reading comprehension test. Students were asked to read and study a college textbook chapter both at the beginning and the end of the semester. Results of a paired samples t-test measure indicated significant improvement from the Comprehension pretest ($M = 41.2$, $SD = 12.55$, $N = 35$) to the posttest ($M = 50.3$, $SD = 10.25$, $N = 35$); $t(31) = 3.67$, $p < .001$. This result suggested that the instruction improved students' reading performance on a teacher-made comprehension test. This finding was consistent with Nist and Simpson (1990) and reviews of the effectiveness of explicit strategy instruction. One problem with this assessment is the level of practical significance. If a score of 70 is considered passing, these students would still fail this classroom test. A second problem is the small number of questions. While typical of a classroom quiz, the assessment was not typical of larger tests in freshmen courses.

Research subquestion 1.2: Standardized reading test. Students' scores on retaking the TASP-Rdg subtest were calculated for this Sample One. Results of a paired samples t-test measure showed significant improvement on the TASP-Rdg subtest from the test taken before the developmental reading course ($M = 201.3$, $SD = 27.05$, $N = 33$) and the best score on the test taken after the developmental reading course ($M = 252.0$, $SD = 18.18$, $N = 28$); t (31) $= 8.31$, $p < .0001$. This finding supports previous research with college students (Caverly, et al., 1995; Maloney, 2003) where strategic reading instruction has been found to improve performance on a standardized reading test. This course met its goal of teaching students strategic reading sufficiently to improve their performance on this TASP-Rdg subtest. Still, without a control group, it is unknown how many of these students would have passed this test without instruction. This issue is addressed in Research Subquestion 2.1 for Study Two. Passing the standardized reading test was a high-stakes goal for these students, yet those who pass the test might still perform poorly on classroom-based tests (as found in Research Subquestion 1.1), or fail college courses.

Research subquestion 1.3: Metacognitive measure. Students were asked to report the strategic reading tactics they used in preparation for the Comprehension test. Results of a paired samples t-test showed significant improvement on the Checklist from pretest ($M = 15.36$, $SD = 3.80$, $N = 33$) to posttest ($M = 20.73$, $SD = 4.00$, $N = 33$); t (32) $= 8.83$, $p < .001$. This result suggested students' metacognitive awareness of effective strategic reading tactics improved after strategic reading instruction. This finding was consistent with El-Hindi (1996) where specific strategy instruction before, during, and after reading improved metacognitive awareness. It seemed students improved in their awareness of which strategic reading tactics were more effective. The improvement on the Comprehension test and the TASP-Rdg subtest suggests that these students not only were aware of strategic reading, but also knew what strategies were more effective, and they reported using them in these reading tasks.

Research subquestion 1.4: Self-efficacy measure. Students were asked to assess their attribution of success to internal or external factors on a self-efficacy survey. Results of a paired samples t-test measure indicated no significant improvement on this survey from pretest ($M = 3.07$, $SD = 0.26$, $N = 31$) to posttest ($M = 3.16$, $SD = 0.32$, $N = 31$; t (30) $= 1.42$, $p = .166$. The strategic reading instruction did not seem to improve students' self-efficacy beliefs about where to attribute success when reading. While students were asked to reflect in a weekly, electronic journal on their applications of their strategic reading behaviors

to other course task demands, this seemed insufficient to change their self-efficacy beliefs. Seeing greater self-efficacy change, might entail more discussion about the effectiveness of these strategies (Simpson & Nist, 1997) or the use of a linked course, where the effectiveness of strategic reading would be more immediate and explicit (Simpson & Rush, 2003; Stallworth-Clark et al., 2000).

Research subquestion 1.5: Transfer. To assess the transfer of students' use of strategic reading to the semester following instruction, interviews were conducted during spring, 2004 of 18 of the 36 students who had enrolled in the developmental reading course the previous fall semester. All but one student reported that reading comprehension strategies were the most important concepts learned. They described in general terms how they learned to understand better, break ideas down and remember them, how to recognize the main idea, and specifically how to orchestrate their reading. One student shared, "I wasn't a good reader before that class. For me it's important because finally I can understand the reading." Another explained that "Before I took that class I was just reading and trying to memorize the information. After I took that class I learned I can reduce unnecessary reading. I was able to organize my studies." These statements suggest a beginning understanding of strategic reading.

In response to specific questions about reading strategically, 4 students reported using the PLAN strategy during the semester in which they were enrolled in the course, 11 of 18 students reported using the strategy during the following semester, and 3 students reported not using it at all. When the 15 students were asked to explain how they had employed PLAN, they described how they had adapted it to differing task demands. For example, one student said, "I've used the PLAN because I think it's one of the best ways to organize yourself right before an exam because it helps you get more details and things instead of just getting information that really doesn't matter...."

Students were also asked to explain what benefits derived from using the PLAN strategy. While 6 students stated they perceived no benefit, 12 students claimed that PLAN helped them improve their grades, their performance on the TASP-Rdg subtest, and in studying and testing in general. Interestingly, several students saw additional benefits such as "Like now I can actually sit down and read"; "I don't always do it, but I know what I need to do to get on track. I know different strategies. I'm more aware"; and "I actually started reading newspapers." From these data, we concluded that students were beginning to employ self-regulation when strategically reading. These belief statements are consistent with those of Simpson and Rush (2003) where, following instruction,

students were more aware of what strategies they should employ to be successful under specific situations.

Study Two

To answer Research Question 2, whether strategic reading skills transferred to authentic college tasks, a quasi-experimental design was used to compare the performance of developmental students who had been taught strategic reading and those who had not. Study Two, Sample Two (see Table 3) was comprised of all first-semester students enrolled at this university from fall 2000 to fall 2002 who were selected through a stratified random sampling by low TASP-Rdg, SATV, and ACTE performance. Sample Two was divided into two groups: (a) those who passed the developmental reading course (treatment group); and (b) those who did not take the reading course over these three academic years (control group).

Table 3
Standardized Reading Scores for Study Two

	TASP-R			SATV			ACTE		
	N	M	SD	N	M	SD	N	M	SD
Treatment	51	207.5	17.8	48	413.1	51.4	25	17.5*	2.4
Control	78	210.9*	13.8	63	413.3*	53.1	59	17.2	3.2
University	1197	257.3**	17.0	2554	517.3**	72.3	1387	21.0**	4.0

* not significant, ** $p < .000$

Table 3 shows that the treatment and control groups were comparable in ability as measured by TASP-Rdg subtest scores, SATV, or ACTE. This confirms the designation of those in the control group as comparable to the treatment group. It also removes the confounding effect of existing cognitive or reading ability found in previous research (Cox et al., 2003; Simpson & Rush, 2003; Stallworth-Clark et al., 1996).

Table 3 also shows that students in Sample Two performed significantly lower than the university freshmen population as a whole, confirming their designation as "true" developmental reading students along several measures. Table 4 reveals that the demographics of the treatment and control groups were decidedly more diverse than the university as a whole. This diversity is typical of developmental education populations in general. The tables suggest these two groups were comparable and, indeed, composed of true, developmental students.

Table 4
Sample Two Demographics

| | Gender (%) | | | Ethnicity (%) | | | | |
	M	F	Anglo	Afro-Amer.	Hisp.	Asian	Amer. Indian	Inter-national
Treatment	47.1	52.9	52.9	17.6	23.5	3.9	0.0	2.0
Control	37.4	62.6	61.7	7.8	27.0	2.6	0.9	0.0
University	56.0	44.0	71.9	5.1	18.4	2.0	0.6	1.9

Study Two Materials

The developmental course materials were used in this as well the first study. All students in this study used the required materials for the reading-intensive course (HIST 1310), which ranged from course textbooks, course handouts, materials on reserve, and Web pages.

Study Two Assessments and Procedures

The first assessment for Research Question Two was subsequent performance on the standardized reading test (TASP-Rdg). It addressed Research Subquestion 2.1: *Did students who were taught to use strategic reading outperform students who were not taught strategic reading on a subsequent retaking of a standardized reading test?*

Research Subquestion 2.2 asked: *Did students who were taught to use strategic reading outperform students who were not taught strategic reading as shown by the grade in a reading-intensive course?* To address this question, we collected grades for three entering freshmen classes (fall 2000, 2001, and 2002) from the fall semester 2000 through the spring semester 2004 for six courses defined by this university as reading-intensive. These were two courses in American history, one introductory course in psychology, two introductory courses in political science, and one sophomore level English literature course. One of the courses, History 1310, was selected as the most appropriate of the reading-intensive courses to use as a dependent variable. To select this course, we computed mean grades for the sub-population of students who failed the TASP-Rdg subtest and who took these reading-intensive courses at the university ($N = 242$). A confounding variable was courses transferred from a community college or another university, for which reading task demands were unknown. Therefore, grades in transferred courses were dropped from the analysis. Mean grades can be found in Table 5:

Table 5
Performance in Reading-intensive Courses

	N	M	SD	z	DFW%
POSI 2320	32	2.19	0.99	11.47*	n.a.
ENG LIT	39	2.18	1.12	13.22*	28.6
HIST 1320	39	2.05	1.05	12.89*	22.0
POSI 2310	44	1.86	1.02	14.55*	n.a.
PSY 1300	32	1.81	1.30	11.57*	14.2
HIST 1310	56	1.34	1.15		39.2

* $p < .0000$

The average grade in HIST 1310 was the lowest grade, suggesting it was the most difficult course. Results (Meyers, personal communication, May 11, 2004) from internal studies of percentages in freshmen level courses of D, F, and W grades (DFW%) showed that HIST 1310 has a much higher DFW% rate (39.2%) when compared to the other freshmen level courses, also confirming its difficulty. Because DFW% rates were not available for POSI 2310 or POSI 2320, we interviewed the department chair of Political Science, who stated that although reading was required in these courses, it accounted for a small part of the examinations compared to lecture and other instruction (Mihalkanin, personal communication, May 13, 2004). Finally, a Mann-Whitney U test of significance showed students' grades in HIST 1310 were significantly lower than all the other reading-intensive courses. Therefore, the final grade in History 1310 was selected as the dependent variable for Research Question Two.

Study Two Results

Research question 2.1: Transfer on standardized reading test performance. To determine whether strategic reading improved performance on a subsequent retaking of a standardized reading test when compared to a control group, we followed students' performance from the fall semester 2000, through spring semester 2004. Results of a paired samples t-test measure indicated significantly greater improvement on a subsequent retaking of the TASP-Rdg subtest for the treatment group ($M = 252.61$, $SD = 16.10$, $N = 56$) than for the control group ($M = 242.47$, $SD = 22.77$, $N = 43$); $t (72) = 2.51$, $p = .014$. This supports findings of Research Subquestion 1.2 as well as previous research (Caverly, et al., 1995; Maloney, 2003) in which students who enrolled in a developmen-

tal reading course who learned strategic reading performed better on subsequent retaking of standardized tests.

Research question 2.2: Transfer to a reading-intensive course. A second question explored whether strategic reading improved transfer to reading-intensive courses when compared to a control group. Students' performance was followed from the fall semester 2000 through spring semester 2004 in one reading-intensive course, HIST 1310.

Using a non-parametric Mann-Whitney U test statistic, we compared grades in HIST 1310 for the treatment group (M = 1.97, SD = 0.72, N = 30) against the grades in HIST 1310 for the control group (M = 1.34, SD = 1.15, N = 56). A significantly higher grade for the treatment group occurred (U = 579.5, z = 2.46, Asymptotic Significance = .014). Because of the ordinal nature of the HIST 1310 grade data, non-parametric Spearman rho correlation as a measure of association (i.e., effect) was calculated between the median rank of the treatment group and the median rank of the control group. The Spearman rho correlation coefficient (r = 0.09, N = 121) was a low positive effect (Cohen,1988). Developmental students who were explicitly taught strategic reading outperformed developmental students who were not taught it. This finding of long-term transfer for a stand-alone course was consistent with others (Cox et al., 2003; Simpson & Rush, 2003; Stallworth-Clark et al., 2000) who found such transfer for linked courses.

Discussion

The two investigations reported here looked at the effectiveness of strategic reading instruction in a stand-alone course for true developmental students, defined as having scored significantly lower than their peers on more than one reading assessment. Instruction over one semester resulted in significant growth in their scores on a standardized reading test, in an assessment of their metacognitive awareness of effective strategic reading tactics, and in their report of beliefs in strategic reading. There was small but significant gain in reading performance as measured by a teacher-made comprehension test of a college textbook chapter but no gain on a self-efficacy scale. In other words, students learned a strategic reading strategy called PLAN and became strategic readers as assessed by four out of five measures.

This strategic reading instruction in a stand-alone course had a significant long-term transfer effect according to two measures, a standardized reading test and the grade in a subsequent reading-intensive college core course. Specifically, students enrolled in the reading course scored significantly higher on a standardized reading test compared to a control group of developmental readers who did not take the course. For

students enrolled in the strategic reading course, there was a small, but significant effect size for grade in a subsequent reading-intensive history course, when compared to a control group, even after several semesters. This finding suggests a need for stronger or sustained intervention to garner a more robust effect. It is consistent with Cox et al. (2003), who found transfer of developmental reading measured as course grade in English composition and basic math. Such results are vital, not only for keeping developmental readers in college, but also for supporting the continuation of programs in light of criticism of college developmental reading instruction (Adleman, 1996; Maxwell, 1997).

Our two studies were conducted in a single university, which restricts generalizability. Moreover, selective admission criteria resulted in a smaller population of true developmental reading students. Still, similar strategic reading courses have been successfully taught to true developmental readers, though little evaluative or empirical research has emerged (Bower, Caverly, Stahl, & Voge, 2003). Future studies should differentiate true developmental readers from those so defined by a single assessment.

Research in linking a developmental reading course with a reading-intensive course has shown some success for teaching students strategic reading, self-efficacy, and the benefits of both (Simpson & Nist, 1997; Simpson & Rush, 2003; Stallworth-Clark et al., 2000). Still, little transfer of strategic reading has been found to other courses beyond the linked course, though there is some evidence of transfer for study strategies (Hattie et al., 1996). Improving self-efficacy and transfer of strategic reading in developmental readers calls for a strengthening of teaching and an attention to transfer of strategies. For example, pairing a stand-alone, strategic-reading course to a reading-intensive core course can provide guided practice. Subsequent support for transfer to other reading-intensive courses is needed to build independence.

The final course grade in reading-intensive courses still might not be the best measure of strategic reading transfer, although it is a more precise measure than semester GPA or retention. Many factors can enter into the computation of a final course grade (such as attendance, extra-credit work, or group projects) that require little strategic reading. Future studies should identify dependent variables that more precisely assess transfer, such as performance on specific classroom tests or tasks in subsequent semesters, and that are valid and reliable measures of knowledge developed primarily through reading.

College reading can be a daunting task. Not only must students read successfully and extensively, but also they must monitor their success, change strategies to meet varying learning demands, and attribute suc-

cess to their strategic approaches to reading rather than to chance or external factors (Simpson & Nist, 2002; Zimmerman & Paulsen, 1995). We have been able to teach strategic reading to developmental students as documented by cognitive, metacognitive, affective, and self-report assessments. We also have been able to document transfer beyond one semester to performance on a standardized reading test and to a reading-intensive core course. Students seem to have learned PLAN. More importantly, the assessments suggest these students have begun to develop a plan for reading strategically.

References

Adleman, C. (1996, October 4). Point of view: The truth about remedial work: It's more complex than windy rhetoric and simple solutions suggest. *Chronicle of Higher Education*, p. A36.

Alexander, P. A., & Jetton, T. L. (2000). Learning from text: A multidimensional and developmental perspective. In M. Kamil, P. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 285-310). Mahwah, NJ: Lawrence Erlbaum Associates.

Alexander, P. A., & Murphy, P. K. (1999). Learner profiles: Valuing individual differences within classroom communities. In P. L. Ackerman, P. C. Kyllonen, & P. D. Roberts (Eds.), *Learning and individual differences: Processes, traits, and content determinants* (pp. 412-432). Washington, DC: American Psychological Association.

Anderson, T. H., & Armbruster, B. B. (1984). Studying. In P. D. Pearson (Ed.), *Handbook of reading research* (pp. 657-680). New York: Longman.

Barnett, J. (1996, April). *Self-regulation of reading strategies in a college course.* Paper presented at the annual meeting of the American Educational Research Association, New York.

Bohr, L. (1994). College classes that attract and generate good readers. *Journal of College Reading and Learning, 26*(2), 30-44.

Bower, P., Caverly, D. C., Stahl, N., & Voge, D. J. (2003, October). *Making the transition from skills-based reading instruction to strategy-based instruction; Parts 1 and 2.* Paper presented at the annual meeting of the College Reading and Learning Association, Albuquerque, NM.

Boylan, H. R., Bonham, B. S., White, J. R., & George, A. P. (2000). Evaluation of college reading and study strategy programs. In R. F. Flippo & D. C. Caverly (Eds.), *Handbook of college reading and study strategy research* (pp. 365-402). Mahwah, NJ: Lawrence Erlbaum Associates.

Burrell, K. I., Tao, L., Simpson, M. L., & Mendez-Berrueta, H. (1997). How do we know what we are preparing students for? A reality check of one university's academic literacy demands. *Research & Teaching in Developmental Education, 13,* 15-70.

Caverly, D. C., Mandeville, T. P., & Nicholson, S. A. (1995). PLAN: A study-reading strategy for informational text. *Journal of Adolescent & Adult Literacy, 39*(3), 190-199.

Caverly, D. C., & Orlando, V. P. (1991). Textbook study strategies. In R. F. Flippo & D. C. Caverly (Eds.), *Teaching reading and study strategies at the college level* (pp. 86-165). Newark, DE: International Reading Association.

Caverly, D. C., Orlando, V. P., & Mullen, J. L. (2000). Textbook study strategies. In R. F. Flippo & D. C. Caverly (Eds.), *Handbook of college reading and study strategy research* (pp. 105-147). Mahwah, NJ: Lawrence Erlbaum Associates.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Mahwah, NJ: Lawrence Erlbaum Associates.

Colarusso, K. (2000). *Using a faculty survey of college-level reading and writing requirements to revise developmental reading and writing objectives. Kellogg Institute final report, practicum 1999.* (ERIC Document Reproduction Service No. ED448823)

Cox, S. R., Friesner, D. L., & Khayum, J. (2003). Do reading skills courses help underprepared readers achieve academic success in college? *Journal of College Reading and Learning, 33,* 170-196.

Donley, J., & Spires, H. A. (1999). Effects of instructional context on academic performance and self-regulated learning in underprepared college students. *Research & Teaching in Developmental Education, 16,* 23-32.

Doughty, I. D. (1990). *Improving reading comprehension of underprepared college students.* Unpublished master's thesis, Nova University, Miami, FL.

Duffy, G. G. (2002). The case for direct explanation of strategies. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 28-41). New York: Guilford Press.

El-Hindi, A. E. (1996). Enhancing metacognitive awareness of college learners. *Reading Horizons, 36*(3), 214-230.

Hattie, J., Biggs, J., & Purdie, N. (1996). Effects of learning skills interventions on student learning: A meta-analysis. *Review of Educational Research, 66,* 99-126.

Horn, L., Peter, K., & Rooney, K. (2002). *Profile of undergraduates in U.S. postsecondary institutions: 1999-2000* (A. G. Malizio, Project Officer) [Statistical Analysis Report NCES 2002-168]. Retrieved June 1, 2004, from U.S. Department of Education, National Center for Education Statistics World Wide Web Electronic Catalog: *http://nces.ed.gov/pubsearch*

Maloney, W. H. (2003). Connecting the texts of their lives to academic literacy: Creating success for at-risk first-year college students. *Journal of Adolescent & Adult Literacy, 46,* 664-673.

Maxwell, M. (1997). *The dismal state of required developmental reading programs: Roots, causes and solutions.* (ERIC Document Reproduction Service No. ED415501)

Moyle, P. B. (Ed.). (2003). Biodiversity and biogeography. In *Essays in wildlife conservation: A reader for WFC 10, Wildlife Conservation and Ecology* (chap. 3). Retrieved October 8, 2003, from *http://www.meer.org/chap3.htm*

National Evaluation Systems. (2003). *THEA: Texas Higher Education Assessment.* Retrieved June 1, 2004, from *http://www.thea.nesinc.com/*

Nist, S. L., & Simpson, M. L. (1990). The effect of PLAE upon students' test performance and metacognitive awareness. In J. E. Readence & R. S. Baldwin (Eds.), *39th Yearbook of the National Reading Conference: Literacy theory and research: Analyses from multiple paradigms* (pp. 321-328). Chicago: National Reading Conference.

Nist, S. L., & Simpson, M. L. (2000). College studying. In M. Kamil, P. Mosenthal, P. D. Pearson & R. Barr (Eds.). *Handbook of reading research* (Vol. 3, pp. 645-666). Mahwah, NJ: Lawrence Erlbaum Associates.

O'Hear, M. F., & MacDonald, R. B. (1995). A critical review of research in developmental education: Part I. *Journal of Developmental Education, 19*(2), 2-6.

Parsad, B., & Lewis, L. (2003). *Remedial education at degree-granting postsecondary institutions in fall 2000* (B. Greene, Project Officer) [Statistical Analysis Report NCES 2004-010]. Retrieved December 26, 2003, from U.S. Department of Education, National Center for Education Statistics World Wide Web Electronic Catalog: *http://nces.ed.gov/pubsearch*

Pressley, M. (2002). Comprehension strategies instruction: A turn-of-the-century report. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 11-27). New York: Guilford Press.

Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Pressley, M., Yokoi, L., Van Meter, P., Van Etten, S., & Freebern, G. (1997). Some of the reasons preparing for exams is so hard: What can be done to make it easier. *Educational Psychology Review, 9*, 1-38.

Robinson, F. P. (1970). *Effective study* (4th ed). New York: Harper & Row.

Scholz, U., Gutierrez-Dona, B., Sud, S., & Schwarzer, R. (2002). Is perceived self-efficacy a universal construct? Psychometric findings from 25 countries. *European Journal of Psychological Assessment, 18*(3), 242-251.

Simpson, M. L. (2002). Program evaluation studies: Strategic learning delivery model suggestions. *Journal of Developmental Education, 26*(2), 2-4, 6, 8, 10, 39.

Simpson, M. L., & Nist, S. L. (1997). Perspectives on learning history: A case study. *Journal of Literacy Research, 29*(3), 363-395.

Simpson, M. L., & Nist, S. L. (2000). An update on strategic learning: It's more than textbook reading strategies. *Journal of Adolescent & Adult Literacy, 43*(6), 528-541.

Simpson, M. L., & Nist, S. L. (2002). Encouraging active reading at the college level. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 365-381). New York: Guilford Press.

Simpson, M. L., & Rush, L. (2003). College students' beliefs, strategy employment, transfer, and academic performance: An examination across three academic disciplines. *Journal of College Reading and Learning, 33*, 146-156.

Stallworth-Clark, R., Nolen, M. T., Warkentin, R., & Scott, J. S. (2000, April). *College students' academic performance: The interaction of strategy engagement, content, and context.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Stallworth-Clark, R., Scott, J. S., & Nist, S. L. (1996, April). *The teaching-learning process and postsecondary at-risk reading students: Cognitive, metacognitive, affective, and instructional variables explaining academic performance.* Paper presented at the annual meeting of the American Educational Research Association, New York.

Wade, S. E., & Reynolds, R. E. (1989). Developing metacognitive awareness. *Journal of Reading, 33*(1), 6-15.

Weinstein, C. E., & Mayer, R. E. (1985). The teaching of learning strategies. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (pp. 315-327). New York: Macmillian.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice, 41*(2), 64-70.

Zimmerman , B. J., & Paulsen, A. S. (1995). Self-monitoring during collegiate studying: An invaluable tool for academic self- regulation. *New Directions for Teaching and Learning, 63,* 13-27.

Appendix

P or Predict step

Students were taught to predict the content and text structures of assigned readings by previewing titles, introductions, subtitles, boldfaced and italicized words, visual aids such as pictures and graphs, and summaries. As students predicted, they were also taught to create a concept map of ideas from this preview. They were taught to judge the task demands of the text and to compare it to the task demands of the professor.

L or Locate step

Students were taught to consider their prior knowledge of the mapped ideas by placing check marks next to known and question marks next to unknown information.

A or Add step

Students were taught to engage in close reading as they confirmed their prior knowledge and answered their questions about unknown information. They were taught to add new branches to their map where there were question marks as well as to confirm where there were check marks adding new information if incorrect.

N or Note step

After reading, students were taught to consider what they now knew and how well it satisfied the task demands assessed before reading. If they perceived the task required the recall information, students learned to review their maps using the graphic organizer to help them remember. If they perceived the task required them to reconstruct information, students learned to rebuild their maps to represent the macrostructure

of the author's argument and to review this new structure in preparation for a variety of assessments.

David C. Caverly *(Ph.D., Indiana University) is Professor of Curriculum and Instruction at Texas State University—San Marcos, where he teaches developmental reading and graduate courses in reading education. Each summer he coordinates the Technology Institute for Developmental Educators (TIDE). His research focuses on strategic reading instruction and the role of technology in learning. He co-edited the* Handbook of College Reading and Study Strategy Research *and serves on the editorial advisory board for the* Journal of College Reading and Learning. *Correspondence concerning this manuscript should be addressed to Dr. David Caverly, Department of Curriculum and Instruction, Texas State University—San Marcos, San Marcos, TX 78666. Telephone 512-245-3100. E-mail:* DCaverly@txstate.edu. **Sheila A. Nicholson** *(M.S.Ed. Western Illinois University) is a Lecturer in Reading in the Department of Curriculum and Instruction at Texas State University—San Marcos. She has more than 25 years experience teaching students at the middle school, high school, adult, and college levels. Her research interests focus on strategies for struggling readers, engagement with multiethnic literature, and computer-mediated communication practices among developmental readers as well as among preservice teachers. E-mail:* SheilaNicholson@txstate.edu. **Rich Radcliffe** *(Ph.D., University of Denver) is an Associate Professor in the Department of Curriculum and Instruction at Texas State University—San Marcos. He has served as a middle school teacher and an administrator in higher education. His research interests include character education, reflective decision-making, content area literacy, and implementation of middle school programming. E-mail:* rr32@txstate.edu.