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Self-Regulated Learning in Reading:

Gifted Pedagogy and Instructional Settings

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Researchers and theorists (e.g., Boekaerts, 1997; Corno, 2001; Flavell, 1979; Schunk & Zimmerman, 2007; Winne, 1995; Zimmerman, 1989, 1990, 2000) who study individual differences in motivation and achievement believe that a common set of mental processes and behaviors exist that constitute self-regulated learning (SRL). Students who self-regulate their learning utilize and initiate volitional control to direct cognitive and behavioral strategies during the learning process (Corno, 1986; Winne, 1995; Zimmerman, 1989), and it is well documented in the research literature on learning that active engagement in the learning process produces increases in academic performance (Ablard & Lipschultz, 1998; Ames, 1984; Corno, 1986; Dweck, 1986; Schunk & Rice, 1987, 1991; Zimmerman, 1989; Zimmerman & Martinez-Pons, 1990).

Current research suggests that self-regulated learning can be improved when instructional methods and environmental conditions support the use of a set of strategies directed toward three primary goals: the optimization of personal functioning,

Summary

Personal processes, the environment, and individual behaviors of both teachers and students are factors that facilitate students' use of self-regulation learning strategies in reading. Some environmental conditions, such as organization of materials and clear expectations, support the development and use of self-regulation learning (SRL) strategies in reading. Teachers who use explicit instruction and modeling of SRL strategies have more students who can use self-regulation to read for longer periods and respond to higher order thinking questions. However, there are highly self-regulated students (even though fewer numbers) in low self-regulation classrooms, suggesting that individual differences in SRL strategies exist among gifted students and perhaps some gifted students as early as fifth grade have already attained the individual ability to use self-regulated learning SRL strategies to read and learn. The combination of domain-specific strategy instruction in reading combined with the use of SRL strategies to support knowledge acquisition seems to help more students in the higher self-regulation classroom achieve and maintain focus during reading instruction.

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academic behavioral performance, and the learning environment (Zimmerman & Martinez-Pons, 1990). The second way to increase self-regulated learning is via environmental conditions that provide students with opportunities to make choices, have volitional control, participate in assessments, engage in complex tasks, and seek help (DeCorte, Verschaffel, & DeVen, 2001; Perry, 1998; Perry, Hutchinson, & Thauberger, 2007; Perry, Phillips, & Dowler, 2004; Turner, 1995).

The Schoolwide Enrichment Model–Reading (SEM-R) is an enrichment approach to reading instruction and strategy development designed to increase self-regulation (SR) and reading achievement. It was based upon the foundational work of Vygotsky's (1978) Zone of Proximal Development, current research on best practices in reading (National Reading Panel, 2000; Pinnell, 1995; Pressley, 1998), and is an extension of Renzulli and Reis' (1997) pedagogy for talent development. This reading intervention incorporates strategy instruction, choice, and challenging high-interest reading materials into three phases of reading instruction.

This qualitative study, part of a larger multiple school study, focused on teacher and student actions in an attempt to investigate the environmental conditions present during instances of SRL strategy use and the instructional methods utilized by teachers that supported the use of self-regulated learning strategies in the higher SR classroom. This qualitative study also sought to answer the question: What individual differences in SRL strategy use were found in gifted students in the higher SR classroom compared to gifted students in the lower SR classroom?

Our observations focused on two classrooms: One with multiple instances of self-regulated learning behaviors exhibited by students (high SR classroom) and one with minimal evidence or very few instances of self-regulated learning behaviors (low SR classroom). The qualitative findings of this study suggest that the methods used by one teacher coincided with more frequent instances of self-regulated learning behaviors by students in a fifth-grade self-contained class of intellectually gifted students. This article summarizes two in-depth case studies and identifies strategies to enable students to increase their self-regulated learning in reading.

Review of Related Research

Self-Regulated Learning

Self-regulated learning (SRL) is a multifaceted construct that restricts the scope of self-regulation to the area of achievement. Numerous theorists have conceptualized SRL (Boekaerts, 1997; Corno, 2001; Flavell, 1979; Schunk & Zimmerman, 2007; Winne, 1995; Zimmerman, 1989), and although there are inherent differences among these theoretical views, consistencies emerge across concepts. These theorists assume that students who successfully self-regulate their learning are actively engaged in the process of knowledge acquisition and engage in activities that enable them to strategically adapt their behavior, personal processes, and environment to support meaning making and goal attainment. They also agree that students' effectiveness in the process of self-regulated learning varies based on academic context, personal effort, and performance outcomes. Finally, theorists of SRL assume that academic achievement is mediated by the use of SRL strategies such as organizing, goal-setting, planning, self-evaluating, information seeking, record keeping, self-reflecting, self-monitoring, and reviewing (Boekaerts & Corno, 2005; Winne & Perry, 2000; Zimmerman & Martinez-Pons, 1990).

Environmental Influences on Self-Regulated Learning

Multiple studies have addressed the question of environmental influences on self-regulated learning and various aspects of classroom environments seem to support students in the use and development of self-regulated learning strategies (see Table 1).

Turner (1995) examined how reading tasks affected students' engagement in learning and found higher degrees of SRL behaviors in certain classrooms. These classrooms provided authentic reading opportunities (reading for information or interest), offered student choices in reading material (personally meaningful and appropriate challenge), granted flexibility in classroom procedures (location and timing), and encouraged students to

Table 1

Environmental Influences on Self-Regulated Learning

Environmental Condition	Researchers
Choice and volitional control over processes, timing, challenge level, and outcome of learning task	Perry et al., 2007; Perry et al., 2004
Complex tasks that extend over time, allow for variation in expression style, and integrate multiple processes, both cognitive and procedural	Perry, 1998; Perry et al., 2004; Turner, 1995
Classroom practices (e.g., small-group instruction and differentiation) that encourage help-seeking	DeCorte et al., 2001; Perry, 1998; Perry et al., 2007; Perry et al., 2004
Classroom practices that require students to participate in the process of evaluating their own work	Perry, 1998; Perry et al., 2007; Perry et al., 2004

engage in complex tasks. Teachers in these classrooms often modeled higher order thinking skills, encouraged students to utilize literacy strategies, and provided explicit instruction in metacognitive strategies.

Perry (1998) identified 3 third-grade classrooms and categorized each as high or low in potential for students to develop SRL. The high-potential classrooms provided opportunities for students to engage in complex tasks, make choices, be involved in evaluation processes, and seek support from peers and teacher. Teachers in these classrooms encouraged students to attempt challenging tasks, made sure students had necessary knowledge to complete tasks, supported students in making appropriate choices, and used performance assessments embedded in ongoing activities that focused on continued progress.

Self-Regulated Learning in Reading Instruction

Schunk and Rice (1987, 1991) conducted numerous studies analyzing the effects of the explicit instruction of self-regulated learning strategies and the modeling of SRL strategies on reading comprehension. The researchers found that orienting students toward a process or product goal resulted in greater increases in

reading comprehension and self-efficacy than general goals, and combining process goals with verbal feedback further increased reading comprehension and self-efficacy (Schunk & Rice, 1991). They also found that specific strategy instruction when combined with modeling SRL strategies increased comprehension more than modeling or explicit strategy alone (Schunk & Rice, 1987). These findings were corroborated and extended when researchers (Souvignier & Mokhlesgerami, 2006) found that SRL strategy instruction combined with reading strategy instruction resulted in positive, long-term effects in reading comprehension that were significantly different from control groups.

Interest also seems to be a factor in SRL strategy use. Multiple studies have found that students with high interest in a specific text made significantly greater use of cognitive and metacognitive strategies such as planning, self-monitoring, and focusing while reading (Mason, 2004; McWhaw & Abrami, 2001), and high levels of *personal interest* directed toward a specific topic was positively correlated with the use of SRL strategies (McWhaw & Abrami, 2001).

The SEM-R is an enriched reading program designed to promote the use and development of self-regulated learning strategies and increase achievement while emphasizing enjoyment in the learning process. A comparison between factors previously shown to support SRL use and the SEM-R is provided in Table 2.

Individual Differences in SRL

Zimmerman and Martinez-Pons (1990) studied differences between intellectually gifted students (scoring at or above the 99th percentile on a standardized test of mental ability) and students attending a nonselective school and found that the gifted students estimated their verbal and mathematical efficacy higher than students in general education schools and that there is a relationship between verbal and mathematical efficacy and the use of self-regulated learning strategies. The strategies most frequently used by gifted students were organizing and transforming, self-consequating, seeking assistance, and reviewing.

Table 2

SEM-R and Self-Regulated Learning (SRL)

SRL Classroom Support	SEM-R
Choice and volitional control	• Choice of book • Allowed to move away from distractions during Phase 2: Supported Independent Reading (SIR) time • Phase 3: Self-choice literature based activities
Complex tasks that extend over time	• Purpose provided for reading (e.g., higher order thinking questions provided on bookmarks, answer weekly reflection question) • Phase 3: Self-choice literature based activities
Opportunities for help-seeking	• Students provide visual indicator of current status (e.g., cloud card = need help) • Individualized conferences with teacher • Post-it® notes for writing questions and identifying unknown words
Explicit strategy instruction	• Embedded strategy instruction in Phase 1: "Book Hook" read aloud • Targeted instruction in 5–7 minute differentiated conferences during Phase 2: SIR time • Metacognitive prompting (Hoffman & Spatariu, 2008) • Higher order thinking questions
Interesting subject matter	• Book selection individualized and based on student interest
Student participation in evaluation	• Conferences promote teacher/student discussion of student progress • Teacher records student progress in Reading Log • Provide nonthreatening, mastery oriented feedback
Student SRL Behaviors	**SEM-R**
Self-reflection	• Weekly reflections in Reading Log
Self-evaluation	• Participation in conferences
Self-monitoring	• Extended, focused individual reading (30 minutes) • Move away from distractions • Maintaining task commitment in Phase 3: Choice activities
Goal setting	• Setting intent to increase amount of time engaged in focused reading • Set milestones for systematically increasing challenge level of book selections
Record keeping	• Record and graph minutes and pages read in Reading Log • Record titles of books read in Reading Log
Planning	• "Books I Want to Read" list in Reading Log
Personal interest	• Interest-based book selection opportunities
Metacognitive awareness	• Using reading strategies modeled and explicitly taught during Phase 1 and Phase 2 • Reading Logs

SRL strategy use increased with age, and self-regulated learning strategies varied widely within the population of gifted students. This finding was later corroborated by similar studies with high-achieving students (Ablard & Lipschultz, 1998; Risemberg & Zimmerman, 1992).

Methods

In this qualitative study, we examined the differences between students' use of self-regulated learning and reading strategies in 2 self-contained SEM-R treatment classrooms that had very different outcomes in student self-regulation. In one classroom, students demonstrated high levels of self-regulatory behaviors, while in the other classroom, students failed to exhibit the same degree of self-regulatory strategy use. This qualitative study focused on teacher and student actions and experiences in an attempt to identify the environmental conditions and instructional methods present during instances of SRL strategy use in the higher SR classroom, as well as the individual differences in self-regulated learning strategy use demonstrated by gifted students in the higher SR classroom as compared to students in the lower SR classroom.

Selection of Classrooms

A purposeful sampling method was used to select 2 self-contained gifted and talented classrooms at the same grade level in the same elementary school in which students had very different outcomes in self-regulated reading behaviors. These classrooms were part of a larger study on the effect of SEM-R. Teachers were randomly selected for treatment and control conditions with students randomly assigned to clusters. Treatment classes were chosen over control classrooms to control for differences in pedagogical approaches to reading instruction and to assess potential benefits associated with the use of SEM-R. The two

classrooms that were observed for this study had been assigned to the treatment condition.

Identification for gifted classes in this school was based on achieving a cut-off of 130 on the Naglieri Nonverbal Ability Test, as well as high achievement scores and teacher nomination. The school had a diverse population of 1,043 gifted students, and classroom composition reflects this diversity, as 58% of the students were White, non-Hispanic; 5% were Hispanic; 1% was Native American; 15% were Black; and 22% were Asian.

The SEM-R Intervention

The SEM-R embeds both domain-specific (reading) strategy instruction and promotes the use of self-regulated learning (SRL) strategies via direct instruction, modeling, and support materials while providing students with exposure to high-interest reading material. The program is administered in three phases and reading strategy and self-regulated learning strategy instruction are embedded across each phase.

In Phase One of the SEM-R, teachers selected literature to read aloud to students, interspersed with higher order questioning and thinking skills instruction. Because the purpose of these "Book Hooks" is to increase student exposure to literature and to build student interest, teachers introduced a new book (or books) each day rather than a more traditional reading of a novel from cover to cover. Researchers provided each teacher with a collection of 250–275 high-interest books to begin this read-aloud component and for Phase Two. Students and teachers were given a set of more than 60 bookmarks, and each bookmark featured higher order questions focusing on skills such as synthesis and evaluation. Teachers also were provided with suggestions for engaging students' interests and exposing them to a variety of literary genres.

The second phase of the SEM-R emphasizes the development of students' self-regulation skills within a supported, independent reading environment. Supported Independent Reading (SIR) is defined as independent silent reading of self-selected books

that are 1 to 1.5 grade levels above a student's current reading level (appropriately challenging) coupled with 5–7-minute individualized, differentiated reading conferences. Students recorded their daily progress in a reading log featuring the book title and number of minutes read, and once each week all students wrote a response to a teacher-generated higher order question. Teachers tracked individual student progress by monitoring the reading logs, reading and responding to students' writing, and keeping records of individual conferences. Students were active participants in assessment, progress monitoring, and reading reflections.

Maintaining focus for extended periods of time and selecting appropriately challenging books are two aspects of Phase Two. In the beginning of the intervention with SEM-R, classroom observations revealed that most students in both classrooms could read appropriately challenging books for only 5–15 minutes a day without losing concentration or focus (Mr. Perrin, classroom observation, October 10, 2007; Ms. Jackson, classroom observation, September 27, 2007). Teachers added a minute or 2 each day during the SEM-R intervention, extending that time within 3 to 4 weeks to 25–30-minute daily sessions across treatment classes (Mr. Perrin, classroom observation, January 17, 2008; Ms. Jackson, classroom observation, January 16, 2008).

The third phase of the SEM-R is comprised of self-choice enrichment opportunities (e.g., creative writing, individual projects, discussion groups, and reading on the computer). Among the three phases, this one was the most variable in length and content due to the range of literature-based options provided by the teacher and the variability of individual needs for structure and scaffolding within and between students.

Study Implementation

The length of the intervention in the school extended from the beginning of September to the end of February, providing students assigned to the treatment group with 1 hour of instruction in SEM-R each day of the week for 22 weeks. Research team members regularly monitored treatment fidelity in the schools

during the intervention and observations were carried out and recorded on a weekly basis. As the intervention progressed, observations in treatment classrooms occurred at least twice each week. Field notes were summarized after each day of observation.

The systematic analysis of data gathered with the observation instruments indicated differential outcomes in the treatment teachers' observed in this school. The Self-Regulation Observation Scale (Housand, 2008) was used to create a ratio score (average instance of SRL strategy use per minute observed) for each classroom in the school. The fifth grade had the greatest discrepancy between the highest and lowest scoring treatment classes in a single grade. An analysis of field notes documenting teacher lesson plans and teacher interviews provided descriptive statements that also indicated differences between classrooms. These taken together enabled researchers to identify one fifth-grade classroom as a high SR and another as a low SR classroom. Within the high SR classroom, instances of student SRL strategy use were observed more frequently than in the low SR classroom (.115 and .067, respectively). Additionally, teacher use of instructional strategies, modeling of strategy use, and environmental support for self-regulation were observed more often in the high SR class than in the low SR class (.128 and .087, respectively).

It should be noted that both teachers were veterans with more than 15 years of teaching experience and that both received the same level of training in the SEM-R (a 2-hour overview, a 1-week class over the summer, and equal opportunity for coaching). Given that teachers in the larger SEM-R study were randomly assigned to conditions, there were varying levels of enthusiasm regarding implementation of the SEM-R. Initially, Ms. Jackson seemed resistant to the use of SEM-R in her classroom whereas Mr. Perrin seemed enthusiastic about implementing SEM-R in his classroom. These initial levels of enthusiasm may have created differences in depth of understanding, as Mr. Perrin, whose classroom showed lower SR, seemed to suggest that he already did many of the things required by the SEM-R approach while Ms. Jackson's reluctance seemed to dissipate over the course of the training.

Instrumentation

In this study, self-regulation observations were conducted using two instruments. In the SEM-R Observation Scale (Little, Fogarty, & Reis, 2005), observers ranked teachers' implementation of various aspects of each phase of the SEM-R as below, meets, or exceeds expectations. Examples of items addressing student self-regulation and strategy acquisition in this scale were:

1. scaffolded higher order thinking skills or literary concepts;
2. asked questions or provided reading strategies on differentiated levels;
3. provided smooth transition between phases;
4. enabled students to remain actively involved in reading;
5. provided choices with different levels of complexity;
6. enabled students to remain actively involved in choice activities;
7. encouraged the use of SR strategies; and
8. organized the classroom to support choice activities.

Observers also were asked to script events and dialogue that occurred during the class, record the amount of time students spent reading independently, and reported the number of students able to maintain focus during the extended reading time. Interrater reliability for the SEM-R Observation Scale has been shown to be very high (r = .910).

The second instrument was an environmental attributes and overt behaviors checklist, the Self-Regulation Observation Scale. The interrater reliability was r = .695 (Housand, 2008). It was developed for the consistent recording of observations across classrooms and across observers. One research team member trained all observers thereby creating consistency across trainings. The instrument was used to detail the frequency of teachers' provision of choice in activities and work location, opportunities for complex tasks and student self-assessment, and encouragement toward help seeking. The instrument also was used to detail the frequency of student behaviors: students participate in self-assessment, have choice, move around the classroom, and seek assistance.

Data Collection and Analysis

Qualitative, comparative case study methodology was used in this study (Yin, 2003). Classroom observations were conducted and teacher participants were interviewed using semi-structured techniques from an inside perspective (Fetterman, 1989). Classroom observations were conducted by researchers and on-site personnel hired by the research study. There were five different individuals conducting classroom observations in Mr. Perrin and Ms. Jackson's classrooms; four were research team members and one was an on-site observer. Mr. Perrin's class was observed six times for 45, 45, 50, 50, 55, and 60 minutes between September 19, 2007 and January 17, 2008. Ms. Jackson's class was observed four times for 37, 36, 38, and 45 minutes, between September 27, 2007 and January 16, 2008. Teacher interviews were embedded within field notes as no formal interviews were conducted. Initial qualitative analysis involved development of categories or themes to represent recurring patterns in the data (Creswell, 2003). The initial coding scheme, created from the conceptual framework, research objectives, and preliminary analyses of observations was developed and linked to the research questions by the researchers. Data were coded and entered into meta-matrices to organize descriptive data from each of the cases into a standard format (Miles & Huberman, 1994) and enable patterns and themes to be identified. An interpretative analysis technique (Bogdan & Biklen, 1992) was used to identify general themes across the case studies.

Findings and Discussion

Differences in student use of self-regulated reading strategies across the 2 classrooms were noted during a series of classroom observations with informal interviews with the classroom teachers. Case studies of each classroom were created and are summarized beginning with the high SR classroom and followed by the

lower SR classroom. The case studies are followed by the general themes across the case studies.

Case Study One: Ms. Jackson's Classroom Implementation of SEM-R

Upon entering Ms. Jackson's classroom, order pervaded the environment, as students were at their desk working, shelves were organized, and the classroom reading library was arranged by genre, book series, authors, and award-winning titles. During the SEM-R, students were instructed to take out their SEM-R materials and students responded, pulling materials from their desk and reorganizing accordingly.

The findings based on observations in Ms. Jackson's classroom over 4 months demonstrated that she consistently provided and enabled a smooth transition between phases of the SEM-R, often conducted conferences in Phase Two without interruption, provided a quantifiable goal for students to achieve while engaged in silent reading, used questions in and across conferences that varied in complexity and difficulty, and provided strategy instruction.

From observations of Ms. Jackson's Phase Two instruction, a core pattern emerged related to student SRL during conferences. First, she provided students with an outcome goal to be met before she scheduled a conference with them. Once a conference began (classroom observations, November 13, 2007; January 16, 2008), she asked a broad question about genre or content, told the student to read aloud, asked targeted and differentiated questions, and ended with assessing a quantifiable goal as Ms. Jackson provided students with a bookmark to be filled in with challenging or unknown vocabulary words, increasing the quantity of words required over the course of the intervention as student success increased.

In the individualized conferences, Ms. Jackson asked targeted questions about comprehension, predictions, connections, and other reading strategies. In addition, Ms. Jackson provided students with a purpose for reading. In one conference, for exam-

ple, she reminded, "As you keep reading, think about the way the character changes" (classroom observation, November 13, 2007). Ms. Jackson typically ended her conferences by asking students, "What vocabulary words did you struggle with?" or, "Did you get good vocabulary words?" She also typically asked how students would rate the book on a scale from 1 to 10 and why they would give it that rating. When used consistently over time, this consistent but brief ending pattern provided a clear signal to students that the conference time was coming to an end.

In addition to the basic structure of Ms. Jackson's conference procedure, she asked multiple and varied questions during each conference. Some questions focused on literary concepts such as author's purpose while other questions challenged students to reflect, make text-to-self connections, and/or make predictions. The questions she asked of students also were differentiated across conferences. For example, with one student Ms. Jackson asked, "Tell me in your own words what is happening in this scene. What do you think about this character so far? What admirable qualities can you tell me about this character?" In a conference with another student on the same day, she asked, "What big idea or message does the author have in this book? What kinds of images are created with words in this book?" (classroom observation, November 13, 2007). Thus, Ms. Jackson expanded and narrowed focus to support student accessibility at varying levels of comprehension, complexity, and readiness.

The majority of Ms. Jackson's students were able to maintain their self-regulated reading for the time specified, usually between 25 and 30 minutes (classroom observations, November 13, 2007; January 16, 2008). During one observation (classroom observation, November 13, 2007), it was 80% of the students (20 of 25); during another (classroom observation, November 13, 2007), it was 23 of 25 (92% of the students); and during others, it was 96% (classroom observation, September 27, 2007) and 92% (classroom observation, January 16, 2008). On the SEM-R Observation Scale, observation checklists of Ms. Jackson's students and class consistently noted that she "provided verbal guidance and/or environmental reminders of SR strategies for reading."

Several observations detailed the specific strategies she used, including verbal reminders (classroom observations, November 13, 2007; January 16, 2008), posted instructions (all classroom observations), modeling strategies (classroom observations, September 27 and November 13, 2007), and the discipline she herself displayed (all classroom observations). The regular use of student logs, reminders to complete logs, find books of high interest, and conference strategies for use of SR strategies were noted by all observers.

Case Study Two: Mr. Perrin's Classroom Implementation of SEM-R

In Mr. Perrin's classroom, disorder was noted on all daily observations. During one observation (classroom observation, January 17, 2008), as one researcher entered the classroom, the students were sitting on their desks, listening to music players (iPods, MP3 players), chatting with other students, showing movies, and standing at the sink. Materials for the class appeared disordered as they were visually accessible all over the classroom, in stacks, piles, and haphazardly arranged around the room, on shelves, and above cabinets (one of which stood open). Upon noticing the researcher, Mr. Perrin explained that the students were taking a break and classwork would resume in a few minutes. After multiple requests students finally transitioned to the beginning of SEM-R time by placing electronics and miscellaneous "break" materials in their desk and taking their seats.

Elements of exemplary SEM-R implementation were not evident over multiple observations in Mr. Perrin's classroom (classroom observations, October 10, November 12, and November 14, 2007). For example, during one observation of the Phase One Book Hook, Mr. Perrin failed to discuss the book genre, read with expression, nor were there any visible signs of student engagement during the read aloud (classroom observation, November 12, 2007). The observation notes indicated that 2 minutes into the Book Hook, only 7 of the 26 students in the class appeared to be actively listening (9 were doing some-

thing else on top of their desk, 4 appeared to be drawing or doodling, and 6 other students were distracted or looking away from the teacher). In another observation (classroom observation, October 10, 2007), 8 of 23 students were playing with items on their desks, writing, drawing, and not paying attention during the Book Hook and another 3 students got up and moved around the class during the Book Hook. Mr. Perrin failed to provide any direction or strategies to the students who made no attempt to self-regulate during these observations.

Mr. Perrin regularly failed to embed strategy instruction and/or higher order thinking questions in his conferences (classroom observations, September 19 and October 10, 2007; January 17, 2008). From observations in the Phase Two conferences, a pattern emerged across conferences. Mr. Perrin typically asked students to read at the beginning of each conference or gave a reason for not having the student read (e.g., "I've already heard you read from this book" [classroom observation, November 14, 2007]) and engaged the student in a conversation with a series of low-level questions. Examples provided by field notes (classroom observation, November 12, 2007) of Mr. Perrin's questions were, "Is this book any different than the other two books in the trilogy?" "Are you committed to finishing this book?" "Is A the antagonist, like in the other series?" "Do you see that the resolution is beginning?" "Have you read anything else by this author?" Notable within these types of questions were missed opportunities for explicit reading strategy instruction and a general lack of questions that required answers other than yes or no.

Observations (classroom observations, November 12 and November 14, 2007) also suggested that students failed to enter the book they were reading or to enter notes in their reading logs on a regular basis. Observation notes (classroom observations, September 19, November 12, and November 14, 2007) consistently suggested Mr. Perrin's own disorganization about which students had participated in conferences with him and how many students he needed to meet with on any given day.

Across *all* recorded observations, observers checked "provided limited or no verbal guidance or environmental reminders,

and/or many students did not use self-regulation strategies" on the SEM-R Observation Scale. This is consistent with observation notes that Mr. Perrin did not provide verbal guidance for utilizing SR strategies nor was there evidence of environmental reminders to support and encourage students' use of SR strategies (classroom observations, September 19, October 10, November 12, and November 14, 2007).

Across observations, it was interesting to note that 65–80% of students were able to regulate their behavior and maintain focus on their chosen book for the entire 25 to 30 minute supported independent reading time. For example, observations found that 21 of 26 students (80%) were able to maintain their reading for 35 minutes (classroom observation, November 12, 2007); in another, it was also 21 of 26 (80%; classroom observation, October 10, 2007); in another observation, it was 65% (classroom observation, November 14, 2007); and in another, it was 70% (classroom observation, September 19, 2007).

Findings Related to Research Objectives

1. *To investigate the environmental conditions present during instances of SRL strategy use in the higher self-regulation (SR) classroom.*

The theme that emerged related to this objective was the environmental order that was present allowing higher degrees of self-regulation to emerge on the parts of students in this classroom. Environmental conditions for higher SR in the SEM-R intervention were characterized by order, organization, clear expectations, and materials for students to reflect, track their progress, and actively engage the text. In addition to these physical supports, students were provided with many options for choice in content as they were encouraged to select high-interest books to read during supported independent reading time. Table 3 outlines the major findings in observations across both the high SR class and the low SR class.

Table 3

Major Findings for Environmental Conditions

High SR Classroom	Low SR Classroom
SRL Strategy: Choice	
• Choice of book content	• Choice of book content • Students did not respond to teacher instructions
SRL Strategy: Volitional Control	
• Classroom was organized, quiet, and controlled • Library organized and easily accessible • Students allowed to browse and select books without teacher support or permission • Students able to select books within the length of one 5–7-minute conference	• Classroom characterized by disarray and disorder; materials piled around classroom • Library unorganized (books on shelf upside down, pages facing out, horizontal on top of vertical books) • Student socializing occurred at bookshelf
SRL Strategy: Complex Tasks	
• Consistent use of Reading Logs • Purpose for reading made clear (finding unfamiliar vocabulary and writing them down)	• Reading Logs not used • No purpose provided for reading
SRL Strategy: Metacognitive Prompting	
• "Bookmarkers" for writing unfamiliar vocabulary • Provision of Reading Log • Required weekly reflection • Open-ended weekly writing prompt	• No environmental evidence
SRL Strategy: Use of Metacognitive Strategies	
• Reflection in Reading Log • Tracking progress (minutes and pages read; books completed) • "Wish list" for books to read in future	• No environmental evidence
SRL Strategy: Student Participation in Assessment	
• Students track progress in Reading Log • Conferences were a dialogue with students; specific goals for strategy use set during conference time • Conferences consistently 5–7 minutes in length • Teacher expectations provided in conference notes section of Reading Log	• Conferences exceeding recommended 5–7-minute time limit

An example of these environmental influences is the use of the teacher-developed "bookmarkers" in the classroom designated as the high SR class. During one observation (classroom observation, November 13, 2007), Ms. Jackson instructed students to find their "bookmarker" and to "have your bookmarker ready and be looking for five words to include in your writing reflection." On another observation day (classroom observation, January 16, 2008), the teacher began Phase Two by saying, "You need to fill out your reading log and you should use your bookmarker for vocabulary. Find at least three words." The bookmarker, a physical reminder of the explicit goal of finding words, provided a structure for students' active engagement in a process throughout their reading time. The teacher addressed the bookmarkers in conferences as well: "Have you come across any new words? Write them down with the page number. We'll conference again after you're farther into the book. You may want to write down a passage you like for your writing reflections" (classroom observation, November 13, 2007).

These findings appear to support other research on the environmental influences that affect SRL including work by Perry and colleagues (2004, 2007) on choice and volitional control as well as the provision of complex tasks that extend over time, allow for variation in expression style, and integrate multiple processes, both cognitive and procedural (Perry, 1998; Perry et al., 2004; Turner, 1995).

2. *The instructional methods utilized by teachers supported the use of self-regulated learning strategies in the higher SR classroom.*

The theme that emerged from this research objective was related to the explicit expectation, instruction, and modeling of self-regulated learning behaviors and strategies. In the high SR classroom, students were regularly given clearly stated expectations, engaged in explicit goal setting, and were provided with a purpose for reading. Additionally, differentiated questioning techniques and appropriate responses were modeled across con-

ferences and during Book Hooks. Table 4 outlines the major findings in observations across both the high SR class and the low SR class.

Ms. Jackson provided explicit strategy instruction embedded in the Book Hook and in her individualized conferences along with opportunities to answer higher order thinking questions. During a Book Hook in one observation (classroom observation, September 27, 2007), after connecting to students' prior knowledge and reading a short passage, Ms. Jackson asked, "Can you identify the point of view? Are there any text-to-text connections?" In a Book Hook on another day (classroom observation, November 13, 2007), the teacher modeled book selection strategies utilizing discussions about her own strategy and methods, explaining that "I always look at the cover and back. Then I read the blurb to get an idea of what the book is about." Varied and explicit strategy instruction also was embedded in Ms. Jackson's conferences. For example, when referring to a bookmarker word the student had found, she said, "Great word . . . What does it mean in context?" (classroom observation, November 13, 2007).

This finding supports Turner's (1995) research in which reading tasks were found to affect students' engagement in learning. Turner's study found higher degrees of SRL behaviors when students were provided choice in activities and opportunities to engage in complex tasks that extended over time. Turner also found that teachers who modeled higher order thinking skills, encouraged students to utilize literacy strategies, and provided explicit metacognitive strategy instruction had students who exhibited higher levels of SRL strategy use. This is consistent with the findings regarding Ms. Jackson's instruction techniques.

3. *What individual differences in self-regulated learning strategy use were found in gifted students in the higher SR classroom as compared to gifted students in the lower SR classroom?*

The individual differences noted in student self-regulated learning strategy use varied between the 2 classes. The theme

Table 4

Major Findings for Instructional Methods Utilized by Teachers

High SR Classroom	Low SR Classroom
SRL Strategy: Choice	
• Provided choice in content	• Provided choice in content
SRL Strategy: Volitional Control	
• Allowed students to move around classroom without permission • Clear expectations; reviewed at beginning of class time	• Allowed students to move around classroom without permission
SRL Strategy: Complex Tasks	
• Provided purpose for reading • Consistently referred to and required use of Reading Log • Developed "bookmarkers" to support students in finding unfamiliar vocabulary within text	• Did not provide purpose for reading
SRL Strategy: Metacognitive Prompting	
• Asking open-ended questions • Provision of Reading Log • Required weekly reflection • Open-ended weekly writing prompt • Differentiated questioning	• Addressed low-level strategies • Asked multiple questions • Rarely explicitly instructed domain-specific strategy use • Questioning did not require students to extend their thinking beyond the text • Did not wait for student answers • Provided information rather than maintaining a process or line of questioning • Answered own questions
SRL Strategy: Use of Metacognitive Strategies	
• Explicit strategy instruction embedded in Book Hook • Opportunities to answer higher order thinking questions • Modeled book selection processes • Connecting to students' prior knowledge • Recognizing genre and character traits • Summarize and identify author's purpose and main idea	• Recognizing genre and character traits
SRL Strategy: Student Participation in Assessment	
• Clearly defined, measurable, and attainable goals set with students' input • Modeling and accountability for goals (addressed as part of conferences and reflection) • Varied and differentiated questions to match students current level	• No evidence of verbal guidance or environmental reminders of SR strategies • Questions lacked variation and complexity across conferences (e.g., "Who's the protagonist? Have you ever heard of the term contrived?"

that emerged related to this question concerned gifted students exhibiting various degrees of SRL behaviors, which were characterized by individual strategies. Those strategies used by the more self-regulated gifted students involved personal effort, motivation to read, and goal orientation.

The percentage of students able to participate in 25–30 minutes of self-regulated reading in Mr. Perrin's class varied from 65% (classroom observation, November 14, 2007) to 80% (classroom observations, October 10 and November 12, 2007) over multiple observations. In Ms. Jackson's class, the percentage of students able to sustain self-regulated reading was much higher, from 80% (classroom observation, November 13, 2007) to 96% (classroom observation, September 27, 2007), but on most observations, over 90%. Gifted students in the higher SR class were typically at or near their desks (classroom observations, November 13, 2007; January 16, 2008) and exhibited both efficient book selection behaviors (classroom observations, November 13, 2007; January 16, 2008) and the ability to focus for the entire supported independent reading time (classroom observations, September 27 and November 13, 2007; January 16, 2008).

The book selection process used by students in Ms. Jackson's class required minimal time as students went directly to a section that matched their interests and selected a book after only 5–7 minutes (classroom observation, January 16, 2008). In one instance a student took longer than a conference period at which time Ms. Jackson inquired if he needed some help (classroom observation, November 13, 2007). With that question, the student's attention was brought back to the task of book selection and the task was completed with ease. Students in this class exhibited volitional control as they moved around the classroom freely, without explicit permission and without creating excessive distraction, to retrieve books as well as other materials.

Individual student SRL strategy use occurred much less often in the lower SR class. In this class, by comparison, some students spent long periods of time at the bookshelf attempting to select a book (classroom observations, September 19, 2007; January 17, 2008), lost focus (classroom observations, October

10 and November 12, 2007), and created distractions for others (classroom observation, September 19, 2007). Examples of these behaviors include conversations at the bookshelf unrelated to book selection (classroom observations, September 19, 2007; January 17, 2008); tapping and hitting classmates as they moved to get a tissue or drink (classroom observation, January 17, 2008); and sitting staring blankly or watching others instead of reading (classroom observations, November 12, 2007; January 17, 2008). Most surprising about these behaviors is that in the low SR classroom, the teacher provided even more opportunities for students to engage in self-regulated behaviors, but these students exhibited a lower degree of self-regulation. This may be due, in part, to the fact that students did not appear to have a purpose for reading and Mr. Perrin did not provide reminders to support students in self-regulation (classroom observations, September 19, October 10, November 12, and November 14, 2007).

These findings are important, as they appear to confirm Zimmerman and Martinez-Pons' (1990) finding that self-regulated learning strategies varied within the population of gifted students, a finding that was later corroborated by similar studies with high-achieving students (Ablard & Lipschultz, 1998; Risemberg & Zimmerman, 1992). Interestingly, these findings seem to shed light on the complex nature of providing freedom within the classroom and to some degree contradict Perry and colleagues' (2004, 2007) findings that SRL increases with increased opportunity for choice and volitional control. Both classes provided substantial volitional control and choice in reading content; however, students in Ms. Jackson's classroom were more able to regulate their behavior than students in Mr. Perrin's classroom.

Discussion

Implications of the Research

This study of self-regulated learning in the SEM-R intervention suggests that personal processes, the environment, and

individual behaviors of both teachers and students are factors that facilitate students' use of SRL strategies in reading. The study suggests that some environmental conditions, such as organization of materials and clear expectations, support the development and use of SRL strategies in reading. It also suggests that teachers who use explicit instruction and modeling of self-regulated learning strategies have more students who can use self-regulation to read for longer periods and respond to higher order thinking questions. It is important to note that there were highly self-regulated students (even though fewer numbers) in the low SR classroom, suggesting that individual differences in SRL strategy exist among gifted students and perhaps some gifted students in fifth grade have already attained the individual ability to use SRL strategies to read and learn. The combination of domain-specific strategy instruction in reading combined with the use of SRL strategies to support knowledge acquisition seemed to help more students in the higher SR classroom achieve and maintain focus in reading.

SEM-R as an instructional model for reading included opportunities for choice and volitional control over several different types of reading tasks. SEM-R also gave options for the timing of different activities within a task as well as the challenge level and outcomes of the tasks. Observed opportunities for SRL in SEM-R included student choice in reading material, flexibility in classroom procedures, and encouragement for students to engage in complex tasks that seemed to support self-regulated learning. Finally, the teacher in the high SRL classroom frequently modeled higher order thinking skills, encouraged students to utilize literacy strategies, differentiated individual conferences, and provided explicit instruction in metacognitive strategies.

Limitations

Threats to both internal and external validity exist in this study as with any other. Concerns might be raised by the fact that research team members also were observers. These observations,

however, constituted approximately half of the observations conducted in these classrooms, as the remaining observations were conducted by observers from the school. Each outside observer was trained by a single research team member to ensure consistency across observation processes. Additionally, while this research has used converging observational evidence to identify consistencies between self-regulation of learning and certain environmental conditions or teaching methods, there is no clear temporal precedent. This constitutes another threat to internal validity, and therefore, assertions of causality cannot be made.

External validity threats are primarily the instrumentation used for observations and the use of scripting rather than recording for classroom dialogue. The instruments themselves, however, have demonstrated at least acceptable psychometric properties and have been used successfully across multiple years of the study.

Conclusion

Although the connection between SRL strategy use and the situated context of the classroom is clear, there remain questions about the degree of influence for both environmental conditions and teaching methods on students' ability to regulate their behavior and employ SRL strategies. Future research should focus on the incremental effects of modeling, explicit strategy instruction, and whether environmental structures are foundational for the development of SRL strategy use or if there is a functional influence from environmental conditions.

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