Children's Motivation for Reading: Domain Specificity and Instructional Influences

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ABSTRACT **The authors discuss the nature and domain specificity of reading motivation and present initial results that examined how 2 reading instructional programs, Concept Oriented Reading Instruction (CORI) and multiple Strategy Instruction (SI), influenced 3rd-grade children's intrinsic motivation to read and reading self-efficacy. Each reading program occurred during the fall of the school year and lasted 12 weeks. Approximately 150 3rd-grade children participated in CORI; 200 3rd-grade children participated in SI. Results of pre- and posttest analyses of children's responses to a reading motivation questionnaire showed that children's intrinsic motivation to read and reading self-efficacy increased only in the CORI group.**

Key words: Concept Oriented Reading Instruction, multiple Strategy Instruction, reading motivation, third-grade children

Over the last 15 years, researchers who studied children's reading increasingly have become interested in children's motivation to read, along with the cognitive skills required to read well (see Guthrie & Wigfield, 2000; Paris, Wasik, & Turner, 1991; Turner, 1995; Wigfield & Guthrie, 1997). Because reading is an effortful activity that often involves choice, motivation is crucial to reading engagement. Motivation theorists attempt to understand the choices that individuals make among different activities available to them and their effort and persistence at the activities they choose (see Pintrich & Schunk, 2002; Wigfield & Eccles, 2002a). Even the reader with the strongest cognitive skills may not spend much time reading if he or she is not motivated to read. In this article, we discuss research on children's reading motivation by focusing on some of our recent research designed to enhance children's reading comprehension and motivation. We begin with a consideration of the domain specificity of reading motivation.

Domain Specificity of Reading Motivation

In this special issue, the topic is motivation in different content domains. In light of this focus, an issue to consider is how (or whether) motivation differs across the different subject areas (see also Wigfield, 1997). Motivation researchers approach the issue in different ways, either implicitly or explicitly. Some of the researchers define their constructs fairly generally, without a great deal of consideration for how they might vary across content areas. For example, in their discussions of intrinsic and extrinsic motivation, Deci, Ryan, and their colleagues talked primarily about these constructs at general rather than at domain-specific levels (e.g., Deci & Ryan, 1985; Ryan & Deci, 2000a, 2000b). In contrast, Gottfried (1990) showed that intrinsic motivation can be differentiated into various domains.

Other researchers defined and often measured their constructs even more specifically. Those who studied self-efficacy often measured it with respect to particular tasks within a given domain, such as how confident the individual is that he or she can read a certain text passage (see Bandura, 1997; Pajares, 1996; Schunk & Rice, 1993). They argued that to understand how motivation influences performance in a particular area, it is crucial that one measures motivation for activities in that area, such as reading self-efficacy, if the topic of the study is reading.

One basic question with respect to the domain specificity of motivation is whether motivation constructs are differ-

This article was supported in part by the Interagency Educational Research Initiative, Grant 89225 from the National Science Foundation to John T. Guthrie, Allan Wigfield, and Pedro Barbosa.

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entiated across various content areas; research suggests that this is the case. Factor analytic studies of children's competence beliefs for different subject areas such as mathematics, reading, science, and so on show clearly that even kindergarten and first-grade children have distinct competence beliefs for various subject areas (Eccles, Wigfield, Harold, & Blumenfeld, 1993; Harter, 1982; Marsh, Craven, & Debus, 1991, 1998). That is, rather than having a broad sense of competence or efficacy, children's sense of efficacy is differentiated into various areas.

The same finding appears to be true for children's interest and intrinsic motivation for different activities, although less research has been done on these topics (Eccles et al., 1993; Gottfried, 1990; Gottfried, Fleming, & Gottfried, 2001). Eccles and colleagues (1993) found that children's value of interest for different subject areas formed distinct factors. Similarly, Gottfried (1990), by using her Children's Academic Intrinsic Motivation Inventory to measure intrinsic motivation, found that 7- to 9-year-old children's intrinsic motivation differentiated into reading, mathematics, and general intrinsic motivation factors. Thus, it appears that young children's competence beliefs and intrinsic motivation are differentiated across subject areas.

Another way that children's motivation can vary across domains is in its strength. Children may be more strongly motivated in one particular area (e.g., mathematics) than they are in another area (reading). There are likely many individual differences in such patterns, but regarding interest, elementary and middle school-aged children say that they are most interested in social and sports activities, and less so in mathematics and reading, a finding that is not especially surprising (Wigfield et al., 1997). The overall strength of children's competence beliefs for those activities appears to differ less than does their interest in them.

A more challenging question is whether the meaning of a given motivational construct varies across content area. Researchers have examined the ways in which younger and older children view constructs like ability and have found that younger children often define ability and effort as working together, whereas older children often perceive them as inversely related. That is, older children think that trying harder means that one is less able (Nicholls, 1978). Freedman-Doan and colleagues (2000) found that children think they can improve their skills in certain domains (academics and sports) more than they can in other areas (music). The results indicate that children view ability in those activities differently; implications for motivation also exist in these results. Children who view effort and ability as working together may continue to try hard even when doing difficult tasks because they perceive that the effort might improve their skill. Children who believe that trying hard means one is less able may opt out of such challenging tasks to protect their ability (see also Dweck, 2002).

The skills that children need to master to do well in various content areas clearly differ, a finding that could have an impact on their understanding of constructs like self-efficacy. Reading self-efficacy involves confidence in language and comprehension skills, whereas mathematics self-efficacy involves confidence in one's numeric skills. Those skills are qualitatively different, which may indicate that children's sense of what it means to be efficacious in each area differs qualitatively as well. However, little research has addressed that issue.

Furthermore, Wigfield (1997) posited that certain aspects of reading motivation may be unique to reading, such as the social aspects of sharing books with others or the experience of getting totally involved in a captivating book. Might similar social and involving experiences occur in mathematics, or are the experiences of mathematics and reading qualitatively different enough that such experiences also are different? To date, the issue of whether children conceptualize motivation differently in varying content areas has not been addressed systematically, and it is an important topic for future research.

Finally, children's motivation is influenced strongly by the kinds of experiences they have in school (Stipek, 1996, 2002; Wigfield, Eccles, & Rodriguez, 1998). The approach of schools to the curriculum could affect the degree to which children's motivation is domain specific. Schools in which each subject is taught separately could quickly lead children to have very domain-specific motivations for each subject area. When curricula are integrated across content areas, it is possible that children's motivation also may be more integrated across domains.

On the basis of existing research, we believe that motivation is domain specific (see Wigfield, 1997). Therefore, when one is interested in how motivation relates to learning and performance in a particular domain, it is important to conceptualize and measure motivation specific to the domain of interest.

Reading Self-Efficacy and Intrinsic Motivation to Read

In this article, we focus on certain major constructs from the motivation literature, self-efficacy, intrinsic motivation, and extrinsic motivation and discuss how they operate in the domain of reading. We focus on those constructs primarily because they relate in important ways to children's reading frequency and comprehension. In addition, those constructs (particularly self-efficacy and intrinsic motivation) are the motivation constructs that we emphasized in our intervention work in a following section, Fostering Children's Reading Motivation. We do not intend to suggest that those motivation constructs are the only ones relevant to reading. Broader reviews of reading motivation can be found in Guthrie and Wigfield (2000) and Wigfield and Tonks (2004) and of motivation in general in Pintrich and Schunk (2002) and Eccles, Wigfield, and Schiefele (1998).

Measures of reading motivation are only beginning to be developed. Wigfield and Guthrie (1997) and Baker and Wigfield (1999), building on work in the general motivation literature, developed the Motivations for Reading Question-

naire (MRQ) to assess various motivation constructs that they believed would relate to children's reading. They wanted to define in specific ways the nature of children's motivation for reading. The constructs they assessed included self-efficacy for reading, intrinsic motivations such as curiosity about reading and preference for challenge in reading, extrinsic motivations such as desire for reading recognition and getting good grades in reading, social reasons for reading, and a number of others including reading avoidance. Using exploratory and confirmatory factor analyses, the researchers found that the constructs could be distinguished empirically in the reading domain and that they related to children's reading frequency and comprehension.

Watkins and Coffey (2004) conducted further factor analytic studies of the MRQ. Although they were critical of the measure, results of their factor analyses provide reasonably consistent support for 8 of the 11 aspects of reading motivation discussed by Wigfield and Guthrie (1997). We believe that this is further strong evidence of the multidimensionality of reading motivation, and evidence for many of the specific aspects of reading motivation that we originally conceptualized. We agree with Watkins and Coffey that further work assessing the dimensionality of children's reading motivation needs to be done.

Self-efficacy for reading. Competence and efficacy beliefs refer to individuals' assessments of their ability to accomplish a task or activity, such as reading a book or a passage in a book. The major influences on children's efficacy beliefs are how well they have done on similar tasks or activities and the feedback and encouragement that they receive from others. Although all of those factors are important, successful previous performance is the most important factor (Bandura, 1997). Researchers have shown that children with high self-efficacy (a) try more difficult activities, (b) do better on different achievement activities, and (c) persist even if they have trouble completing the activities (e.g., Bandura, 1997; Schunk & Zimmerman, 1997). Schunk and Rice (1993), who studied children's self-efficacy for reading, found that children who received training to enhance their reading self-efficacy and strategy use were higher achievers in reading.

Intrinsic and extrinsic motivation. When individuals are intrinsically motivated, they complete activities for their own sake and out of interest in the activity. Their motivation comes from inside themselves rather than from external sources. In the reading area, Wigfield and Guthrie (1997) identified dimensions of intrinsic motivation such as reading curiosity and preference for challenge. Individuals who are intrinsically motivated to learn become deeply involved in their activity and devote much time and energy to it (see Ryan & Deci, 2000a; Wigfield & Guthrie, 1997). Wigfield and Guthrie found that students who were intrinsically motivated to read, as defined by their reading curiosity and preference for challenge (and some additional dimensions), were much more likely to report that they engaged frequently in reading both in and out of school. Intrinsically motivated students also seek to improve their skills and build on what they know, thereby increasing their capabilities. Intrinsic motivation thus can have strong cognitive as well as motivational benefits.

When extrinsically motivated, individuals perform activities to receive some benefit, such as a reward. Their motivation comes from what they will receive for performing the activity rather than from the activity itself. We identified recognition for reading and reading for grades as important aspects of extrinsic motivation to read. Although extrinsic motivators are powerful forces in children's lives and often can be used effectively to engage children in different learning activities, there is concern that an overreliance on them can interfere with children's intrinsic motivation under certain conditions (see Ryan & Deci, 2001b). In our intervention efforts, therefore, we focus on intrinsic motivation for reading.

We portrayed intrinsic and extrinsic motivation in contrasting terms. It is important that we acknowledge that many children perform activities such as reading for intrinsic and extrinsic reasons (Lepper & Henderlong, 2000). It is unreasonable that educators expect that children always will be intrinsically motivated to read or to perform different activities in school (Brophy, 1998). Because intrinsic motivation helps the growth of reading skills and can lead to long-term engagement in reading, however, educators should foster intrinsic reading motivation in the classroom.

We defined separately aspects of motivation that we believe are crucial to reading engagement; relations exist among those different aspects of motivation (see Harter, 1982; Meece, Blumenfeld, & Hoyle, 1988; Watkins & Coffey, 2004; Wigfield & Guthrie, 1997). For instance, students with high self-efficacy to read are more likely to be intrinsically motivated to read. Thus, the different aspects of motivation operate together and influence one another. Along with those relations, there likely is an optimal pattern of motivational characteristics. Students who are intrinsically motivated to read and efficacious about their reading will be more engaged in reading than will students who fare lower on these variables (see Guthrie & Wigfield, 2000; Schunk & Rice, 1993; Wigfield & Tonks, 2004).

Fostering Children's Reading Motivation

The motivation constructs we just discussed are psychological constructs, which makes reading motivation appear to be a set of characteristics inside the reader. However, the kinds of experiences that children have in classrooms strongly influence their motivation for reading and other subjects. Some experiences and educational practices can enhance children's motivation, and others may undermine it (see Stipek, 1996, 2002; Turner, 1995).

With respect to the development of children's motivation in school, a great deal has been written about how children's intrinsic motivation for learning and sense of competence decrease across the school years (see Eccles et al., 1998; Gottfried et al., 2001; Wigfield & Eccles, 2002b). A

complete review of this work is beyond the scope of this article, but we mentioned it here because it points to an important educational problem—declining motivation for academic activities. Researchers have explained those changes in terms of children's increasing ability to understand their own performance and outcomes in school. As children receive more feedback and compare their performance to that of others, their sense of competence may decline. A second explanation concerns the increasing number of evaluative and other experiences that children have in school as well as practices that focus on children's ability compared with their peers. Such practices make it difficult for some children to maintain a strong sense of competence and lowers their intrinsic motivation for school (see Eccles & Midgley, 1989; Eccles et al., 1998; Gottfried et al., 2001; Wigfield et al., 1998).

It is crucial to ask whether the decline in motivation is inevitable or if it can be ameliorated by changing the kinds of experiences that children have in school. A growing body of research suggests that by changing instructional practices, children's motivation can be enhanced so that the decline does not have to occur (e.g., Eccles & Midgley, 1989; Maehr & Midgley, 1996; Stipek, 1996).

Studying Children's Reading Comprehension and Motivation: Comparison of Different Instructional Approaches

We studied the effects of two models of reading instruction on children's reading comprehension and reading motivation. In accordance with the topic of this special issue, we focused here on the motivational aspects of the programs; detailed discussion of the reading comprehension aspects can be found in Guthrie, Wigfield, and Perencevich (2004a) and Guthrie et al. (in press). We based the study in part on our engagement perspective on reading comprehension, which holds that students' reading outcomes are based on the joint functioning of cognitive comprehension strategies, motivational processes, conceptual knowledge, and social interaction among learners (Guthrie & Wigfield, 2000). For those elements to develop, effective instruction for reading comprehension must include support for all of those cognitive, motivational, conceptual, and social processes within the classroom.

The first instructional approach that we examined was Concept-Oriented Reading Instruction (CORI), which has been described extensively in various articles (e.g., Guthrie et al., 1996; Guthrie, Wigfield, & VonSecker, 2000) and in a recent book (Guthrie, Wigfield, & Perencevich, 2004a). *CORI* involves linking reading and science together to foster the development of reading comprehension and motivation. We chose science as the content area for this implementation of CORI; other content areas such as social studies also could be linked to reading. As described in more detail below, hands-on science activities are used to spark students' interests in a variety of topics. Teachers have a multitude of interesting books related to those topics in their classrooms and connect the hands-on activities to the books. They also emphasize a set of science concepts related to plant and animal survival so that the hands-on activities are tied to higher level concepts that foster the development of children's science knowledge. Teachers provide students with opportunities for choice and for collaboration with other students. During reading instruction, CORI teachers teach six reading strategies identified in the National Reading Panel Report (2000) as being crucial for developing children's comprehension skills; these strategies are described in the next paragraph.

The second instructional approach was *Strategy Instruction* (SI), which, as the name implies, consists of teaching multiple reading strategies. In that instructional approach, we used the recommendations and practices for multiple strategy instruction described in the National Reading Panel Report (2000). Teachers focus on the following strategies: activating background knowledge, student questioning, searching for information, summarizing, organizing graphically, and learning story structure for literary materials. In SI, those strategies are taught one by one for the first 6 weeks and then are taught in conjunction and coordination with each other for a second 6-week period. That sequence enables students to gain command of the individual strategies as well as to fuse them in complex comprehension activities in the classroom. The SI model emphasizes the attributes of competence in performing the strategy, awareness of when and how to use each strategy, and self-initiation of the strategy to assure sustained self-regulation of effective reading. The implementation is designed to be as similar as possible to existing practices of multiple strategy instruction that are consistent with research-based recommendations (such as those in the National Reading Panel report).

Previous research has shown that students who received CORI for 1 year surpassed students who received traditional, basal-oriented reading instruction in reading comprehension, cognitive strategies for comprehension, and reading motivation (Guthrie et al., 1996; Guthrie et al., 2000). In the present study, we compared CORI with multiple strategy instruction, so it goes beyond the previous work in important ways.

We investigated the impact of CORI and SI on students' reading motivation; the models are similar with respect to their approach to teaching reading strategies. The same strategies were taught in both programs, one at a time for the first 6 weeks and then in combination during the second 6 weeks. The programs differed, however, in the kinds of motivation support provided and explicit links to reading in the content area of science. Because of the skills that students learned through strategy instruction, both programs provided support for the development of students' reading self-efficacy. CORI also supported the other important aspects of intrinsic reading motivation, as described in the following paragraphs. We therefore believed that students who experienced CORI would surpass students who received strategy instruction in their intrinsic motivation to read.

Fostering Children's Motivation in CORI Classrooms

As discussed in the first section, we believe that children's motivation for reading will be optimal when they are intrinsically motivated to read and they believe that they are efficacious at reading. There are different ways in which children's self-efficacy and intrinsic motivation can be supported in classrooms (see Stipek, 1996, 2002). In our approach, CORI teachers provided extensive classroom support for students' intrinsic motivation through practices described in the next paragraphs (see also Guthrie, Wigfield, & Perencevich, 2004b; Wigfield & Tonks, 2004). We developed the practices on the basis of principles from theories of intrinsic motivation (e.g., Ryan & Deci, 2000a, 2000b) and also from research on how interest influences learning (Hidi & Harackiewicz; 2000; Schiefele, 2001), as well as our own engagement perspective on reading (Guthrie & Wigfield, 2000). CORI and SI teachers support students' reading self-efficacy by teaching students the skills that they need to be competent readers.

Supporting intrinsic motivation for reading. There are several ways in which teachers support students' intrinsic motivation for reading in CORI classrooms. First, a centerpiece of CORI instruction is the use of hands-on science activities to spark children's interest in different topics, with an immediate connection of these activities to interesting texts. Observational activities, class nature walks, systematic investigations, and true experiments provide students with forms of interaction with a topic, such as ecology, that could lead them to want to learn more about the topic. However, the situational interest that a science observation or activity generates might not last (Hidi & Harackiewicz; 2000; Schiefele, 2001). How can we build on this situational interest?

In CORI classrooms, teachers engage in several practices to expand on children's situational interests to develop their curiosity as learners. Immediately after the activity, students generate questions about the activity that they want to investigate further. When students initiate their questions, they have a sense of autonomy over their learning that is motivating to them (see further discussion of autonomy later in this section). The questions also provide them with an impetus to learn more about the topic that they are investigating. For instance, following an observation of a predator bug, students generated many questions that they wanted to answer about the bug.

Second, CORI teachers connect students' interests and questions to interesting books. We provide CORI teachers with a large number of books directly relevant to the scientific topics that are the central focus of the CORI units on survival of life on land and in water. After students participate in the particular activity, they immediately turn to the books to connect their experiences to information that they could gain from text. Students can use the books to help answer their self-generated questions. Teachers work to ensure that there is a match between students' questions and the books they are reading because students become frustrated if their questions cannot be answered as they read. The books available to students include expository and narrative texts and have text features that help teachers teach the various reading strategies (e.g., table of contents and index to help teach search tactics). There also are books at different reading levels so that all students can read books at appropriate levels of challenge. We choose the books in collaboration with the teachers (see Davis & Tonks, 2004).

One important goal is for students to learn that information obtained from conducting the activities and reading about them are complementary and that both kinds of information are crucial to deepen their understanding of the topic, as well as their motivation to pursue it. For instance, children in CORI classrooms dissect owl pellets, a highly engaging activity. They then read about owl pellets. One group of children learned that sometimes fish scales are found in owl pellets. They noted that their own owl pellets did not contain fish scales, which led them to discuss how owls living in different locations likely eat different animals. The knowledge gained from the dissection and the text provided students with a richer knowledge base about owl feeding and survival than did either source alone. The sequence of hands-on activities, question generation, and connection to interesting texts provides instructional support to move students beyond situational interest to intrinsic motivation.

Third, CORI teachers enhance students' intrinsic motivation by supporting the development of their autonomy as learners. *Autonomy* refers to individuals' sense of having control over their own learning. When children perceive that they have control over their actions, as compared with being controlled by others or the environment, they are more likely to be intrinsically motivated (Grolnick, Gurland, Jacob, & Decourcey, 2002; Ryan & Deci, 2000a; Skinner, Zimmer-Gembeck, & Connell, 1998; Turner, 1995). The development of autonomy is an important part of children's development. As they grow older, children desire and need more opportunities to control their own actions and to make their own decisions.

In school, there are some limits to how much autonomy children have. Children have to attend school and study certain subjects; they cannot choose to not study reading or mathematics. Furthermore, teachers and administrators decide on many of the activities that children perform each day in their different subject areas. Within those limits, however, students' autonomy can be fostered if teachers (a) give children choices among different activities within a given lesson, (b) allow them to help determine classroom rules, and (c) otherwise empower them to control different aspects of their learning. To be effective, those choices must be meaningful rather than superficial to the child (see Guthrie et al., 2004b; Turner, 1995).

CORI teachers use four specific teaching practices to foster autonomy. First, they provide meaningful choices to students, such as choice among an array of diverse texts or among many topics within a theme to support autonomy.

Choices must be meaningful and significant for them to build motivation. Choosing to do an assignment in one color versus another color is not a meaningful choice. Choosing particular books to answer a self-generated question is a meaningful choice. Second, CORI teachers promote student self-expression by having students communicate their work to others. By presenting to their classmates, students take strong ownership over the material that they are learning. Third, CORI teachers encourage student questioning as an avenue for them to pursue their own topics within a theme. Fourth, CORI teachers encourage unique and individual approaches to learning, rather than one approach, for all students.

Support for mastering scientific conceptual knowledge. CORI students are taught reading comprehension in the context of knowledge goals related to ecological principles relating to survival (see Barbosa & Alexander, 2004). Again, other science or social studies content domains also are appropriate for CORI. Regardless of which content area is linked to reading, having knowledge goals as a major part of the instructional program enhances children's reading comprehension. We also believe that such goals help provide motivation for students. In particular, the knowledge goals impart a purpose for using strategies such as questioning. By using CORI, students perform such strategies as questioning within a meaningful context, which enables them to learn and use the strategies with greater effort, attention, and interest than within a context devoid of deep, conceptual themes.

Support for self-efficacy. Taboada and Guthrie (2004) provided a detailed discussion of how to teach CORI and SI students the following reading comprehension strategies: activating background knowledge, questioning, searching for information, summarizing, organizing graphically, and learning story structure. Explicit instruction on the strategies, and extended practice using them, is inherent in both programs. With respect to motivation, we believe that when students learn those strategies, they foster their reading self-efficacy. Bandura (1997) postulated that students' self-efficacy is rooted primarily in their successful performance at various activities. By providing students with strategies to help them read, educators give them tools to build not only their reading skills but also their reading self-efficacy. Furthermore, teachers explicitly tell students that the strategies they are learning will make them better readers, thereby boosting their reading efficacy.

Teachers use several other instructional practices specifically designed to enhance students' reading self-efficacy. First, teachers use different levels of text for students varying in ability level so that all students can experience some success as they encounter text. The different levels of text are not meant to emphasize differences in students' ability levels but instead allow all students opportunities for success. Second, teachers focus on each student's improvement rather than on how students compare with their peers. Finally, teachers work with students to help them learn to be aware of when the different strategies are appropriate to use and how to use them on their own. We refer to that process as "strategic self-awareness and initiation."

Collaboration support. Students' intrinsic motivation and efficacy during their work with complex comprehension strategies are increased when they have opportunities to share their questions, interesting texts, and new information (Gambrell, Mazzoni, & Almasi, 2000). Systematic support for collaborative activity enables students to clarify their understanding of the core ecological concepts. Teachers use a variety of collaborative activities in CORI classrooms, including idea and literature circles (Guthrie & McCann, 1996), and a variety of cooperative-learning groups. Also in CORI classrooms, students engage in expressive reading in pairs and in groups to foster their reading fluency and comprehension. Students greatly enjoy working with other students, and when such groups are structured in productive ways, students' motivation and learning can be enhanced.

Method

Overview

During the fall of 2001, teachers implemented CORI and SI in four different schools located in a medium-sized town close to a large urban area. We used an equivalent groups pretest–posttest design (Pedhazur & Smelkin, 1991). The schools that implemented the different instructional frameworks were chosen because they were similar regarding student demographics and performance. We gave pretests prior to the interventions and posttests immediately after the interventions (see Guthrie et al., in press, for further details about the study design).

Teachers participated in workshops during the summer to learn the instructional program that they would teach. The CORI workshop lasted 2 weeks, and the SI workshop lasted 1 week. The CORI workshop was longer because of the science–reading integration in CORI. The training regarding reading comprehension instruction was similar in each program.

Participants, Procedures, and Measures

Concept-Oriented Reading Instruction was implemented in two schools with all third-grade students in eight classrooms (N = 150). Teachers administered the program from the second week in September to the third week in December, for a total of 12 weeks of instruction. The model was taught for 90–120 min daily—in the morning in one school and in the afternoon in the second school.

Strategy Instruction was implemented in 11 classrooms for all third graders in two different schools (N = 200), also from the second week in September to the third week in December. The model was implemented 90 min daily in the morning in both schools. In the CORI and SI models, students who were reading at the end-of-first-grade level or

below in September of Grade 3 were taught off-site by special education teachers for 30 min, approximately three times per week. Struggling readers who were not eligible for special education or were not more than 2 years behind in reading were taught with their regular classmates.

Prior to and just after the 12-week interventions, students completed pre- and posttest assessments. The assessments included measures of reading comprehension and reading motivation; because this special issue focuses on motivation, we described only the reading motivation measures and results for reading motivation. Guthrie et al., (in press) presented results for the comprehension measure. To measure reading motivation, at pre- and posttest, students answered portions of the Motivation for Reading Questionnaire (Wigfield & Guthrie, 1997). During the first year of the study, we measured reading self-efficacy and the intrinsic motivation dimensions of preference for challenge and curiosity. All items were scored on a Likert-type scale ranging from 1 (*Very Different From Me*) to 4 (*A Lot Like Me*); internal consistency reliabilities for the different dimensions ranged from .56 to .74. We also measured children's reports of their reading frequency with the Reading Activity Inventory (RAI; Wigfield & Guthrie). The RAI assesses how often children read different kinds of books and magazines for their own interest and enjoyment.

Procedures

We addressed the following research questions regarding change in children's motivation in response to the instructional programs:

1. To what extent do CORI and SI lead to increases in intrinsic motivation to read? Because of the support for intrinsic motivation in CORI classrooms, we expected that intrinsic motivation of the CORI students would increase more than that of the SI students.
2. To what extent does children's reading efficacy increase following the intervention?
3. To what extent do students who experience CORI and SI increase their amount of reading?

Effects of CORI and SI on Children's Reading Motivation and Reading Frequency

We report the results in three parts, according to the order of our research questions: First we describe analyses of the intrinsic motivation variables, then self-efficacy, and finally, reading frequency.

For the first research question, we initially tested for time and condition effects for the intrinsic motivation variables. We performed a $2 \times 2 \times 2$ (Time $\times$ Motivational Aspects $\times$ Instructional Condition) repeated measures multivariate analysis of variance (ANOVA) with Time; motivational aspects of preference for challenge and curiosity served as within-subjects variables and instructional condition was the between-subjects variable. We found a significant main effect of Time, $F(1, 319) = 12.90$, $p < .001$, $\eta^2 = .04$, and a significant two-way interaction (Time $\times$ Instructional Condition), $F(1, 319) = 7.19$, $p < .01$, $\eta^2 = .02$. The analysis thus indicated that the instructional programs differentially affected change in the aspects of children's motivation. Inspection of the means showed that the sample as a whole increased in reading challenge and curiosity from September to December. To determine whether specific groups increased on challenge and curiosity, we performed a series of repeated measures ANOVAs in each condition for each motivational aspect. We found statistically significant increases in the CORI group for challenge, $F(1, 131) = 17.08$, $p < .001$, $\eta^2 = .12$, and curiosity, $F(1, 131) = 8.16$, $p < .01$, $\eta^2 = .06$. Table 1 summarizes the means and standard deviations. No significant change was found for challenge or curiosity in the SI group (see Figures 1 and 2). Finally, means for challenge and curiosity at September and December did not differ between conditions.

TABLE 1. Means and Standard Deviations for Motivation Outcomes for Concept-Oriented Reading Instruction (CORI) and Strategic Instruction (SI)

	CORI		SI	
Motivation outcome	September	December	September	December
Challenge				
M	2.93	3.21	3.08	3.09
SD	0.88	0.81	0.82	0.83
Curiosity				
M	3.07	3.27	3.11	3.17
SD	0.88	0.79	0.90	0.87
Reading self-efficacy				
M	3.27	3.43	3.35	3.43
SD	0.67	0.59	0.66	0.60
Reading frequency				
M	18.38	21.43	17.59	21.65
SD	5.84	5.78	5.73	6.11

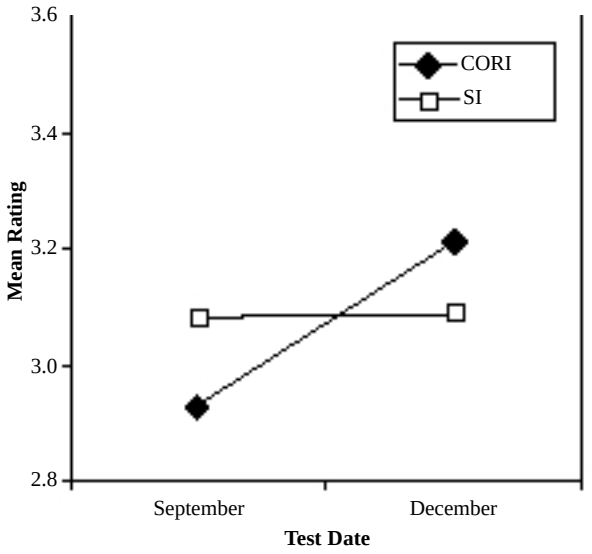

FIGURE 1. Change in preference for challenge in Concept-Oriented Reading Instruction (CORI) and Strategic Instruction (SI) groups.

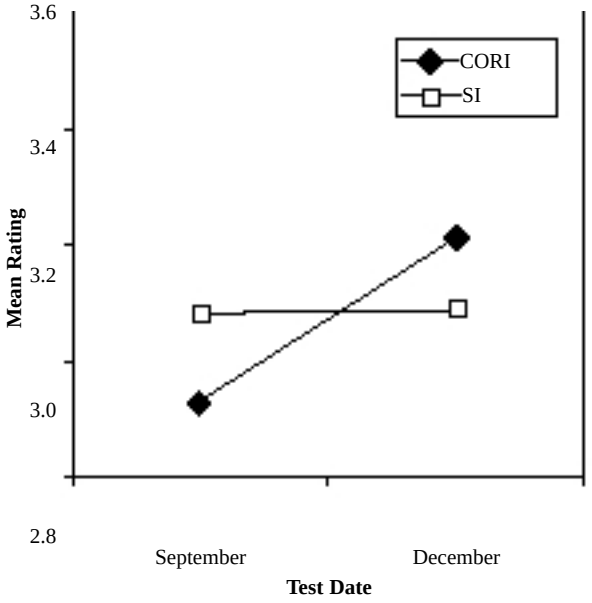

FIGURE 2. Change in curiosity in Concept-Oriented Reading Instruction (CORI) and Strategic Instruction (SI) groups.

For the second research question regarding reading self-efficacy, we performed a 2 × 2 (Time × Instructional Condition) repeated measures ANOVA with September and December reading self-efficacy as the dependent variables and found a main effect of Time, $F(1, 319) = 9.03$, $p < .01$, $\eta^2 = .03$, but no interaction of Time and Condition. The combined group mean increased from September to December. The interaction was not significant, but because we also were interested in change within each condition, we conducted repeated measures ANOVAs within each instructional condition to examine change over time in self-efficacy within each condition. The analyses showed that the CORI group had a significant increase in reading self-efficacy, $F(1, 131) = 8.15$, $p < .01$, $\eta^2 = .06$, whereas SI did not. The CORI and SI groups did not differ in reading self-efficacy at either the September or December assessments.

Concerning our third research question about reading frequency, a 2 × 2 (Time × Instructional Condition) repeated measures ANOVA with September and December reading frequency scores as the dependent variables showed a main effect for Time, $F(1, 320) = 108.89$, $p < .001$, $\eta^2 = .25$, but no significant interaction effect. Repeated measures ANOVAs within groups indicated significant differences from September to December in the CORI group, $F(1, 129) = 35.78$, $p < .001$, $\eta^2 = .22$, and the SI group, $F(1, 191) = 84.45$, $p < .001$, $\eta^2 = .31$. Inspection of the means indicates that both groups increased in reading frequency throughout the semester (see Table 1). The CORI and SI groups did not differ in reading frequency at either the September or December assessment points.

Discussion

In this article we discussed the nature of reading motivation, focusing on two major constructs that determined reading motivation, reading self-efficacy, and intrinsic motivation for reading. We described our study of the effects of two instructional programs, Concept Oriented Reading Instruction and Strategy Instruction, on children's reading motivation. We designed CORI to support the development of children's intrinsic motivation to read. Both CORI and SI programs provide support for student self-efficacy by teaching students comprehension strategies that should increase their reading skills.

Results presented here show that in CORI classrooms, children's intrinsic motivation to read (defined as reading curiosity and preference for challenge) increased during the course of the program, as did their self-efficacy for reading. In SI classrooms, children's intrinsic motivation and self-efficacy did not increase. The self-efficacy findings in each group should be interpreted with some caution because the interaction of Time and Instructional Condition was not significant for this variable. We looked at change over time in each group on self-efficacy despite the nonsignificant interaction for this variable because we were interested especially in change in children's motivation within each of the treatment groups.

Our results add to the growing body of work showing that instructional programs can affect children's motivation as well as their achievement (see also Maehr & Midgley, 1996; Stipek, 1996, 2002). We developed instructional practices to foster intrinsic motivation on the basis of principles from theoretical perspectives on intrinsic motivation

and research on the effects of interest on learning (e.g., Hidi & Harackiewicz; 2000; Ryan, 2000; Schiefele, 2001). In CORI classrooms, teachers work to foster intrinsic motivation to read by engaging children with hands-on science activities and then connecting these activities to interesting texts. Teachers give children choices about which questions to pursue and which books to read and allow them to collaborate often with other students. They focus on the ability of children to gain conceptual knowledge in science. On the basis of our results, it appears that this "package" of instructional supports facilitated children's intrinsic motivation to read, as well as their self-efficacy.

Did the teachers in the two conditions differ concerning their support for student motivation? As part of the larger project, teachers were videotaped while they gave reading lessons and were interviewed about their teaching. Analyses of the videos and interviews showed that CORI teachers attained higher ratings than did SI teachers for establishing knowledge goals, supporting autonomy, integrating hands-on science activities, and supporting a positive social structure via collaboration (Guthrie et al., in press). Thus, CORI teachers did appear to support students' motivation through their instructional practices.

We do not yet know which particular instructional supports led to the increase in students' intrinsic motivation because the supports were offered together. It is possible that a particular set of the supports is crucial to fostering motivation and other sets that are less crucial. Classrooms are complex places, and we believe that a variety of instructional supports are needed to foster children's motivation (see also Stipek, 1996, 2002). However, it might be interesting for researchers to attempt to isolate the effects of the different instructional supports on children's intrinsic motivation.

In CORI and SI classrooms, children receive extensive reading strategy instruction designed to give them the tools that they need to become better readers. The tools are essential for students to develop reading self-efficacy because the strongest influence on efficacy is children's performance in a given area (Bandura, 1997). For children's performance in reading to improve, they need tools, and the reading strategies taught in CORI and SI are one fundamental set. By teaching children those strategies and letting them know that the strategies can be used to improve their reading, teachers build children's reading efficacy. It is possible that children in the CORI program increased their self-efficacy to a greater extent than did the SI students because of the overall package of motivation support provided in CORI, along with the strategy instruction (see Guthrie et al., in press, for further discussion of this issue). Again, children's self-efficacy and intrinsic motivation are related (Harter, 1982; Wigfield & Guthrie, 1997), so instructional practices that enhance intrinsic motivation also may enhance self-efficacy.

Contrary to prediction, the reading instruction programs did not have differential effects on reading frequency. Children's reading frequency increased in both conditions. Perhaps the strategy instruction that children received helped develop their reading skills, leading both groups to read more frequently by the end of the intervention. However, because CORI fosters intrinsic motivation to read, we believe that over the longer term children in CORI classrooms will read more frequently and be more highly engaged in reading (see Guthrie & Wigfield, 2000, for discussion of how reading motivation increases reading engagement). This project has a longitudinal design, so we will assess in the future how the amount of reading that children undertake changes for those experiencing each kind of instructional program.

In this study, we discussed domain specificity of motivation and presented evidence that reading motivation does appear to be domain specific. We measured children's motivation to read, and we believe that the differences we observed reflect variations in children's reading motivation. Had we measured motivation more generally, we may not have found differences in motivation between the instructional groups.

However, because CORI integrates reading and science, it is important to acknowledge that the increases we found in children's reading motivation may have occurred in part because of these science–reading links rather than solely because of the reading instructional practices that support students' motivation. CORI is an integrated program in that CORI teachers teach science along with reading. In such programs, motivation may be less domain specific than in classrooms in which each subject is taught individually, with little, if any, overlap. Thus, the domain specificity of motivation may depend in part on the approach to the curriculum in different schools, along with children's own understanding of their performance in different subject areas.

Although CORI integrates science and reading, a number of the instructional practices to foster children's motivation described in the previous paragraphs focus specifically on reading and, therefore, likely influence reading motivation more than motivation in other domains, even the closely related domain of science. Those practices include the provision of interesting texts, autonomy support for reading, and opportunities to collaborate with other students during reading. Practices to foster intrinsic motivation for science might appear different, and practices to foster intrinsic motivation in less related domains, like mathematics, likely differ even more. We need to explore further how specific instructional practices in different domains influence children's motivation and how integrated versus specialized curricula influence children's domain-specific motivation.

Given the science–reading integration in CORI, it would be interesting to measure motivation for science along with motivation for reading in future work on CORI's effects on students' motivation. Doing so would permit the assessment of change in science motivation as well as in reading motivation and also allow one to examine relations between science and reading motivation. Such analyses would provide further information about the domain specificity or generality of children's academic motivation.

To conclude, this work and other research (e.g., Guthrie et al., 1996, 2000) indicate that CORI affects positively students' motivation to read. We believe that the findings are important for two main reasons: (a) They demonstrate that the often-observed decline in children's motivation can be reversed with instructional practices designed to foster children's motivation and (b) in other research, we have shown that children who are intrinsically motivated read more frequently than do other children (Guthrie, Wigfield, Metsala, & Cox, 1999; Wigfield & Guthrie, 1997). We and other researchers (e.g., Anderson, Wilson, & Fielding, 1998; Stanovich & Cunningham, 1993) have argued that children's reading frequency is an important predictor of their reading comprehension. Thus, classroom efforts to increase children's reading motivation have important implications not just for student motivation but also for student reading comprehension and achievement.

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